

APPENDIX 3

BOTANICAL SURVEYS

APPENDIX 3A

4-Acre Parcel Early Spring 2011 Surveys

BOTANICAL SURVEY FOR THE 4-ACRE PARCEL, JAMUL, CALIFORNIA



May 2011

Prepared for:

Environmental Data Systems, Inc.

and

Jamul Indian Village

Prepared by:

**Natural Investigations Company
1017 Carter Street, Folsom, CA 95630**



1. INTRODUCTION

1.1. PROJECT LOCATION AND DESCRIPTION

The Project location is just south of the town of Jamul in unincorporated San Diego County (hereafter, "County"), California (Exhibit 1). The Study Area of this assessment consists of a 4-acre parcel (APN 597-06-004) (Exhibit 2). The project consists of an access road from State Route 94 to the Jamul Indian Village (Rancheria) site; however, design plans have not yet been finalized.

1.2. PURPOSE AND SCOPE OF ASSESSMENT

Natural Investigations Co. has prepared this botanical survey for Environmental Data Systems Inc., and its Client, Jamul Indian Village, in support of the environmental compliance process.

The scope of work is to perform the first of 3 botanical surveys (early spring, mid-spring, and late spring season surveys) during the 2011 blooming period within the Study Area, so that all possible special-status plant species might be detected. These botanical reports will be appendicized to a separate Biological Assessment for consultation with USFWS and CDFG.

Surveys were floristic in nature and conducted in a manner that would ensure location of any rare, threatened, or endangered species that may be present in the Study Area. Surveys for rare plants were conducted in accordance with the standardized guidelines issued by the U.S. Fish and Wildlife Service (1996), California Department of Fish and Game (2000), and the California Native Plant Society (2001). This report conforms to the scientific writing style established by Council of Science Editors (2006).

2. ENVIRONMENTAL SETTING

The Study Area is located within the Peninsular Ranges geographic subregion, which is contained within the Southwestern geographic subdivision of the larger California Floristic Province (Hickman 1993). The region is in climate Zone 21 – "Ocean-influenced southern California", characterized by infrequent frost, with mild to hot, dry summers and mild, wet winters moderated by marine air influx (Hickman, 1993; Brenzel, 2001). The topography of the Study Area is relatively flat and slopes generally to the south and southwest. The elevation ranges from approximately 900 feet to 940 feet above mean sea level. The general direction of surface runoff in the Study Area is to the southwest via an unnamed, intermittent drainage tributary to Jamul Creek.

The Study Area is not currently in active use, other than having a two-lane access road that currently traverses the site; this access road connects State Route 94 to the Jamul Indian Village. Previously, the parcel served as the Jamul fire station; this portion of the parcel is now vacant has no improvements other than a concrete building pad, pavement and landscape plants. Weeds and tall grass appear to have been periodically mowed or cut back.

The surrounding land uses are as follows: to the south, Jamul Indian Village, and the Rancho Jamul Ecological Reserve and the Hollenbeck Canyon Wildlife Area, and private rangeland; to the north, cattle pasture and residential subdivisions and the town of Jamul; to the east, Highway 94, the new fire station, private estates (Peaceful Valley Ranch Estates), and hayfields; and to the west, cattle pasture and private estates. To the south of the 4-acre parcel is the Jamul Indian Village (Indian Reservation).

3. METHODOLOGY

3.1. PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey the following information sources were reviewed:

- Any readily-available previous biological resource studies pertaining to the Study Area or vicinity
- United States Geologic Service (USGS) 7.5 degree-minute topographic quadrangles of the Study Area and vicinity
- Aerial photography of the Study Area
- California Natural Diversity Database (CNDDB), electronically updated monthly by subscription to CDFG.

The following biological assessments were previously performed within the Study Area and vicinity:

- Beauchamp, R.M. 2000. A biological inventory and wetlands delineation of the Jamul Rancheria Parcels in Jamul, San Diego County, California. Pacific Southwest Biological Services Inc.
- Bureau of Indian Affairs. 2003. Jamul Indian Village Environmental Impact Statement. [Floristic surveys conducted in 2001-2002 of the Jamul Indian Village project area (the 87-acre parcel, the 4-acre parcel, the 10-acre parcel, and the Jamul Indian Village)]
- Natural Investigations Company. 2006. Jamul Indian Village Off-reservation Biological Resources Assessment. Volume I, Appendix D, in Jamul Indian Village (2006) Final TEIS/R. [Floristic surveys conducted in 2006 on the Highway 94 corridor and 4-acre parcel]

3.2. FIELD SURVEY

Surveys were floristic in nature and conducted in a manner that would ensure location of any rare, threatened, or endangered species that may be present in the Study Area. Surveys for rare plants were conducted in accordance with the standardized guidelines issued by the U.S. Fish and Wildlife Service (1996), California Department of Fish and Game (2000), and the California Native Plant Society (2001). This report conforms to the scientific writing style established by Council of Science Editors (2006).

Dr. G.O. Graening (see qualifications in Section 10) conducted the botanical field surveys on March 23 and 24, 2011. Dr. Graening also performed botanical surveys of the 4-acre parcel in 2006, 2007, and 2009, and last year (February 24 2010 and May 4, 2010). A complete coverage, variable-intensity pedestrian survey was performed of the Study Area, modified to account for differences in terrain, vegetation density, and visibility.

Survey efforts emphasized the search for any special-status species or habitats that had documented occurrences, in databases queried, within the Study Area or vicinity. All visible flora observed were recorded in a field notebook, and identified to the lowest possible taxon; a hand lens was used where necessary. When a specimen could not be identified *in situ*, a photograph or voucher specimen (depending upon scientific permit requirements) was taken and identified later in the laboratory using a dissecting scope where necessary. Dr. Graening holds the following scientific collection permits: CDFG Scientific Collecting Permit No. SC-006802 and CDFG Plant Voucher Specimen Permit 09004. Taxonomic determinations and nomenclature followed these references: Pavlik (1991), Hickman (1993), Brenzel (2001), Stuart and Sawyer (2001), Lanner (2002) Calflora (2010), University of California at Berkeley (2010a,b). Scientific names are introduced first and common names are used thereafter for ease of reading.

Plant specimens difficult to identify were sent fresh to the Jepson Herbarium (University of California at Berkeley), where senior botanist Margriet Wetherwax made final determinations (see Section 10 for qualifications). Any collected plant specimens worthy of curation were deposited in the Jepson Herbarium by M. Wetherwax.

3.3. MAPPING AND OTHER ANALYSES

Locations of special status species' occurrences and habitat boundaries within the Study Area were recorded on color aerial photographs, and then digitized to produce the final habitat maps. The boundaries of potentially jurisdictional water resources within the Study Area were identified and measured in the field,

and similarly digitized to calculate acreage and to produce informal delineation maps. Geographic analyses were performed using geographical information system software (ArcGIS 9.3, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors), were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995).

4. RESULTS

4.1. INVENTORY OF FLORA FROM FIELD SURVEY

All plants sighted during the field surveys of the Study Area conducted March 23 and 24, 2011, are compiled in Exhibit 3. No special-status plant species were observed within the Study Area during these surveys. Note that the dates of field surveys may not coincide with every blooming period of regionally-occurring special-status plant species.

4.2. VEGETATION COMMUNITIES

The Study Area currently contains two terrestrial natural community/habitat types, listed in descending areal preponderance: ruderal/developed; and annual grassland (see Exhibit 4).

Ruderal and urbanized areas constitute the majority of the Study Area, and consist of disturbed or converted natural habitat that is now either in a weedy and barren (ruderal) state, plowed, graded, or urbanized with pavement, landscaping, and structure and utility placement. Vegetation within this habitat type consists primarily of nonnative weedy or invasive ruderal species or ornamental plants lacking a consistent community structure. This habitat type provides limited resources for wildlife and is utilized primarily by common species tolerant of human activities.

Annual grassland habitat consists of open fields of non-native pasture grasses and weedy forbs. These annual grasslands have replaced native habitats of perennial bunchgrasses or coastal scrub. Grazing disturbances, rather than periodic wildfires, keep this plant community from undergoing successional changes to woodland. Plant species common in this community include European annual grasses (*Avena*, *Bromus*, *Hordeum*, *Festuca*). Common forbs include turkey mullein (*Eremocarpus setigerus*), yellow star thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). The conversion of native habitats to annual grasslands greatly reduces wildlife biodiversity and habitat value. However, common, disturbance-tolerant wildlife species can occur in these habitats.

Two special-status communities were reported by CNDDDB (CDFG 2010) within a 5-mile radius of the Study Area: Southern Coast Live Oak Riparian Forest and Southern Interior Cypress Forest. No special-status communities are present with the Study Area. Southern Coast Live Oak Riparian Forest is present in the vicinity of the Study Area (on the 87-acre parcel, the 10-acre parcel, and the Jamul Indian Village).

4.3. LISTED SPECIES / SPECIAL-STATUS SPECIES

For the purposes of this assessment, “special status” is defined to be species that are of management concern to state or federal natural resource agencies, and include those species that are:

- Listed as endangered, threatened, proposed, or candidate for listing under the Federal Endangered Species Act;

Historical Special-status Species' Occurrences

A list of special-status plant and animal species that historically occurred within the Study Area and vicinity was compiled based upon the following:

- Any previous and readily-available biological resource studies pertaining to the Study Area;
- Informal consultation with USFWS by generating an electronic Species List (available on the applicable Field Office website); and
- A spatial query of the CNDDDB.

Floristic and faunal surveys conducted in 2001-2002 of the Jamul Indian Village project area (the 87-acre parcel, the 4-acre parcel, the 10-acre parcel, and the Jamul Indian Village), did not detect any threatened or endangered species (BIA, 2003). Floristic surveys conducted in 2006 for SR-94 traffic improvements, which included the Alternative 1 and 2 Study Areas (i.e., the Highway 94 corridor and 4-acre parcel), did not detect any rare, threatened, or endangered plant species in the Study intersections (Natural Investigations Co., 2006). Floristic surveys conducted in 2007, which included the Alternative 1 and 2 study areas (i.e., the Highway 94 corridor and 4-acre parcel), did not detect any rare, threatened, or endangered plant species (Natural Investigations Co., 2007a). Floristic surveys conducted in 2009 did not detect any special-status species (Natural Investigations Co., 2009). Floristic surveys conducted in 2010 did not detect any rare, threatened, or endangered plant species (Natural Investigations Co., unpub. data).

The CNDDDB was spatially queried and any reported occurrences of special-status species were plotted in relation to the Study Area boundary using GIS software (Exhibit 6). The CNDDDB reported special-status species with historical occurrences within the Study Area. Within a 5-mile buffer of the Study Area boundary, the CNDDDB reported over 300 special-status species occurrence records.

The County's SanBIOS database (2010) was also spatially queried and any reported occurrences of special-status species plotted (Exhibit 7). The County's database reported no special-status species with a historical occurrence within the Study Area. Several special-status species occurrences were reported by SanBIOS database on adjacent properties.

A federal species list was also generated from the USFWS website using the USGS 7.5-minute quadrangle in which the Study Area is located, plus the surrounding quadrangles.

Special-status Species Observed During Field Survey

No special-status plant species were observed within the Study Area during the most recent field surveys (March 23 and 24, 2011).

Analyses of Likelihood of Occurrence of Listed Species / Special-status Species

4.3.0.1. Listed Plant Species

Several plants designated as special status were reported in the vicinity of the Study Area by the CNDDDB, and suitable habitats may exist within the Study Area: San Diego sagewort; Otay tarplant; Palmer's grapplehook; Ramona horkelia; decumbent goldenbush; Gander's pitcher sage; felt-leaved monardella; San Miguel savory. Special-status plants are not expected to thrive in the Study Area because of the preponderance of invasive and non-native plants, and habitat degradation associated with urbanization; previous botanical surveys did not detect any rare plants.

Botanical surveys conducted in 2001-2002 of the Jamul Indian Village project area (the 87-acre parcel, the 4-acre parcel, the 10-acre parcel, and the Jamul Indian Village), did not detect any threatened or endangered plants (BIA, 2003). Botanical surveys conducted in 2006 for SR-94 traffic improvements, which included the Highway 94 corridor and 4-acre parcel, did not detect any threatened or endangered species in the Study intersections (Natural Investigations Co., 2006). Botanical surveys conducted in 2007 and 2009, which included the Highway 94 corridor and 4-acre parcel, did not detect any threatened or endangered plants (Natural Investigations Co., 2007a, 2009).

San Diego Thorn Mint (*Acanthomintha ilicifolia*)

San Diego Thorn Mint is an annual herb that occurs on clay, gabbro, and calcareous soils in openings within coastal sage scrub, chaparral, and native grassland habitats of coastal San Diego County. Potentially suitable habitat for San Diego thorn mint does not occur within the Study Area. Non-paved lands within the Study Area are dominated by non-native annual grasses. A botanical inventory of the FEIS project site (the 87-acre, 10-acre, 4-acre parcels) in April 2000 by Beauchamp did not detect this plant. This plant was also not detected in subsequent surveys (Natural Investigations 2006, 2007a), including the current botanical survey for this study.

Otay Tarplant (*Deinandra conjugens*)

The Otay tarplant, federally listed as endangered, is a glandular, aromatic, annual herb; the blooming period for this species is May to June (CNPS, 2010). The majority of occurrences are associated with clay soils in grasslands, coastal sage scrub, or maritime succulent scrub at elevations between 25 and 300 m. This species has a limited distribution consisting of approximately 25 historical populations near Otay Mesa in southern San Diego County and one population in Mexico near the U.S. border; the Study Area is outside of the designated critical habitat. Some grassland habitat does occur within the Study Area, but the plant has never been detected during field surveys over the last decade.

Dwarf Burr Ambrosia (*Ambrosia pumila*)

Dwarf burr ambrosia is federally listed as threatened. CDFG (2010a) describes its habitat requirements as, “chaparral, coastal scrub, valley and foothill grassland; sandy loam or clay soil; in valleys; persists where disturbance has been superficial; sometimes on margins or near vernal pools.” Numerous botanical surveys over the last decade have not detected this species.

Mexican flannelbush (*Fremontodendron mexicanum*)

Mexican flannelbush is federally listed as endangered. CDFG (2010a) describes its habitat requirements as, “closed-cone coniferous forest, chaparral, cismontane woodland; usually scattered along the borders of creeks or in dry canyons; sometimes on gabbro soils; 10-490m.” Numerous botanical surveys over the last decade have not detected this species.

4.4. TREE RESOURCES

Tree resources within the Study Area were inventoried, and consist of the following:

- 2 coast live oaks (*Quercus agrifolia*): the first tree has a diameter at breast height of 38” (multi-stem, one stem 15” and the other 23”); the second tree has 46 inch diameter at breast height
- 1 sycamore (*Platanus racemosa*)
- 5 Aleppo pines (*Pinus halepensis*), 2 of which have died
- 2 Pepper trees (*Schinus molle*)

5. CONCLUSION

Numerous common native and non-native plants were sighted during the field surveys of the Study Area on March 23 and 24, 2011. No special-status plant species were observed within the Study Area during these surveys. Because that the dates of field surveys may not coincide with every blooming period of regionally-occurring special-status plant species, additional botanical surveys are recommended. These mid-spring and late-spring season surveys are in progress, and are being performed by Pacific Southwest Biological Services, Inc.

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7. QUALIFICATIONS OF BIOLOGIST

REPORT AUTHOR, FIELD SURVEYOR: G.O. Graening, Ph.D.

G. O. Graening holds a PhD in Biological Sciences and a Master of Science in Biological and Agricultural Engineering. Dr. Graening is an adjunct Professor at California State University at Sacramento, and is an active researcher in the area of conservation biology and groundwater ecology; his publication list is available online at <http://www.csus.edu/indiv/g/graeningg/pubs.htm>. Dr. Graening is also a Certified Arborist (ISA # WE-6725A) and a Registered Environmental Assessor I (DTSC # 08060). Dr. Graening has 12 years of experience in environmental assessment, including independent contractual work as well as previous employment with *The Nature Conservancy*, Tetra Tech Inc., and CH2M Hill, Inc.

CONSULTING TAXONOMIST: Margriet Wetherwax, M.S.

Ms. Wetherwax holds a Masters Degree in Advanced Plant Systematics and a Bachelor of Science in Botany. Since 1995, Ms. Wetherwax has been employed at the Jepson Herbarium (University of California at Berkeley) as a plant taxonomist and museum scientist. Ms. Wetherwax is managing editor and illustration editor of the Jepson Flora Project and The Jepson Desert Manual, as well as a contributing author to The Jepson Manual: Higher Plants of California and the Flora of North America North of Mexico Project.

8. EXHIBITS

EXHIBIT 1: LOCATION OF PROJECT

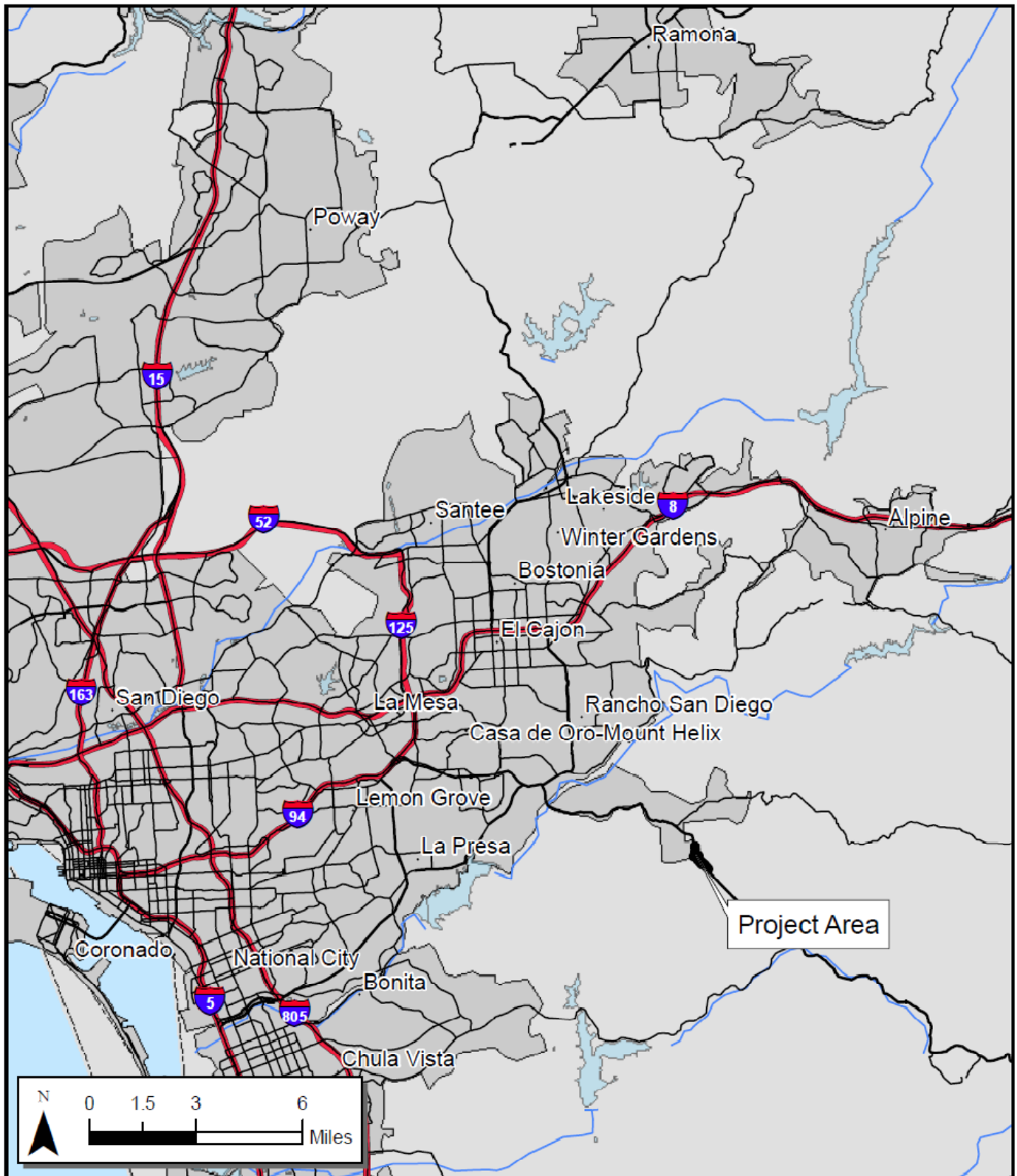


EXHIBIT 2: AERIAL PHOTO OF STUDY AREA

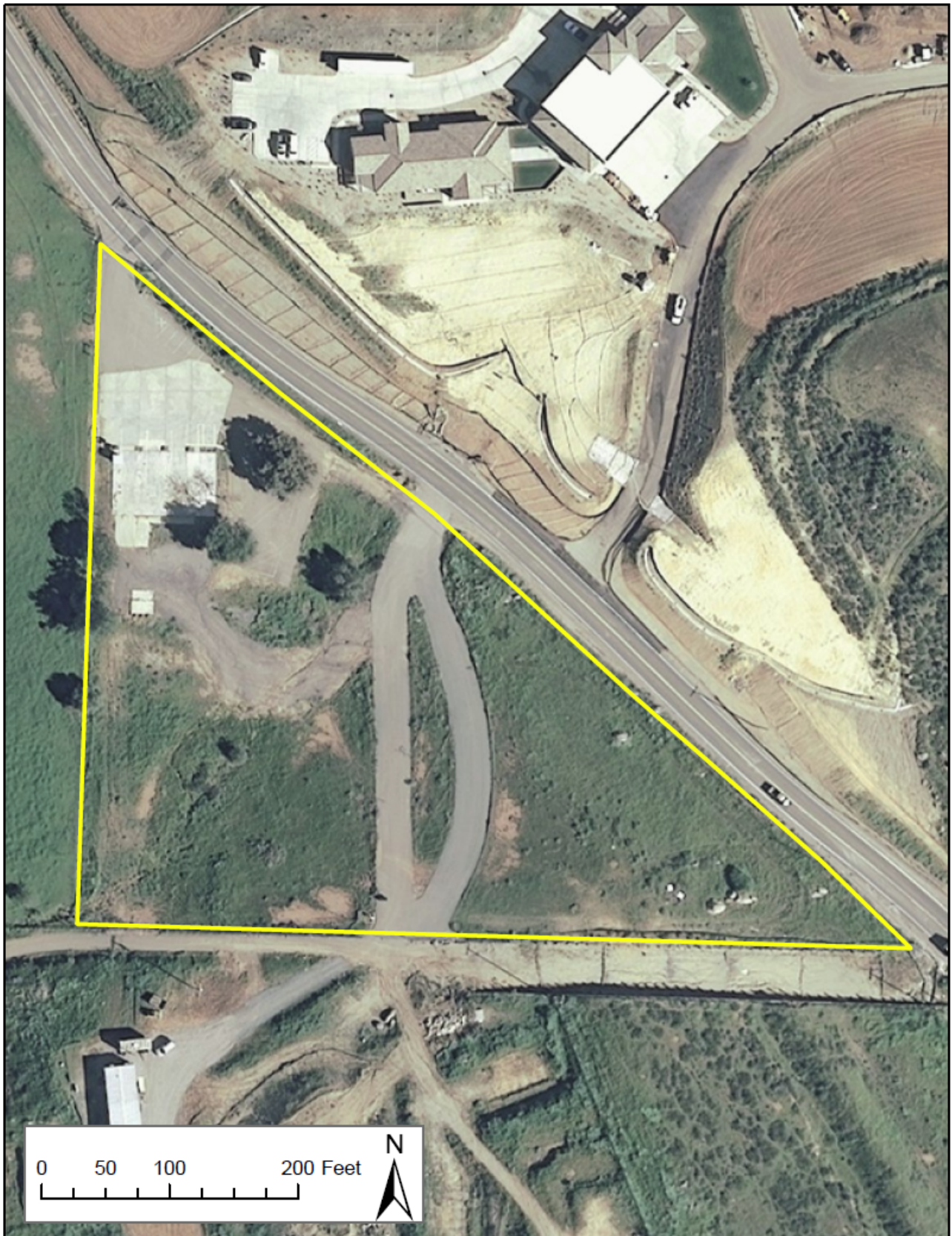


EXHIBIT 3: LIST OF FLORA OBSERVED WITHIN THE STUDY AREA DURING FIELD SURVEYS

Scientific Name	Common Name
<i>Amsinckia menziesii</i>	Menzies' fiddleneck
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Artemisia californica</i>	California Sagebrush
<i>Avena barbata</i>	Slender wild oats
<i>Avena fatua</i>	Wild oat
<i>Brassica nigra</i>	Black mustard
<i>Bromus</i> spp.	Brome grasses
<i>Cirsium</i> sp.	Thistle (invasive)
<i>Chamaesyce</i> sp.	Spurge
<i>Convolvulus arvensis</i>	Field bindweed
<i>Conyza canadensis</i>	Horseweed
<i>Datura stramonium</i>	Jimsonweed
<i>Eremocarpus setigerus</i>	Turkey mullein
<i>Eriogonum fasciculatum</i>	Buckwheat
<i>Erodium</i> spp.	Filarees
<i>Heterotheca grandiflora</i>	Telegraphweed
<i>Hordeum murinum</i>	Barley
<i>Juniperus</i> sp.	Juniper (ornamental)
<i>Lavandula officinalis</i>	Lavender
<i>Lolium perenne</i>	Ryegrass
<i>Lotus</i> sp.	Lotus
<i>Lupinus</i> sp.	Lupine
<i>Malva parviflora</i>	Cheeseweed
<i>Marrubium vulgare</i>	White horehound
<i>Medicago polymorpha</i>	California Bur-clover
<i>Nerium oleander</i>	Oleander
<i>Nicotiana</i> sp.	Tree tobacco (invasive)
<i>Pennisetum</i> sp.	Fountain Grass
<i>Pinus halepensis</i>	Aleppo pine
<i>Plantago major</i>	Common plantain
<i>Platanus acerifolia</i>	London plane tree
<i>Quercus agrifolia</i>	Coast live oak
<i>Raphanus sativus</i>	Wild Radish
<i>Salsola tragus</i>	Russian thistle or tumbleweed
<i>Schinus molle</i>	Peruvian peppertree (ornamental)
<i>Solanum</i> sp.	Nightshade
<i>Taraxacum officinale</i>	Dandelion
<i>Vulpia myuros</i>	Foxtail Fescue
<i>Washingtonia robusta</i>	Mexican Fan Palm
<i>Xanthium strumarium</i>	Cocklebur (invasive)

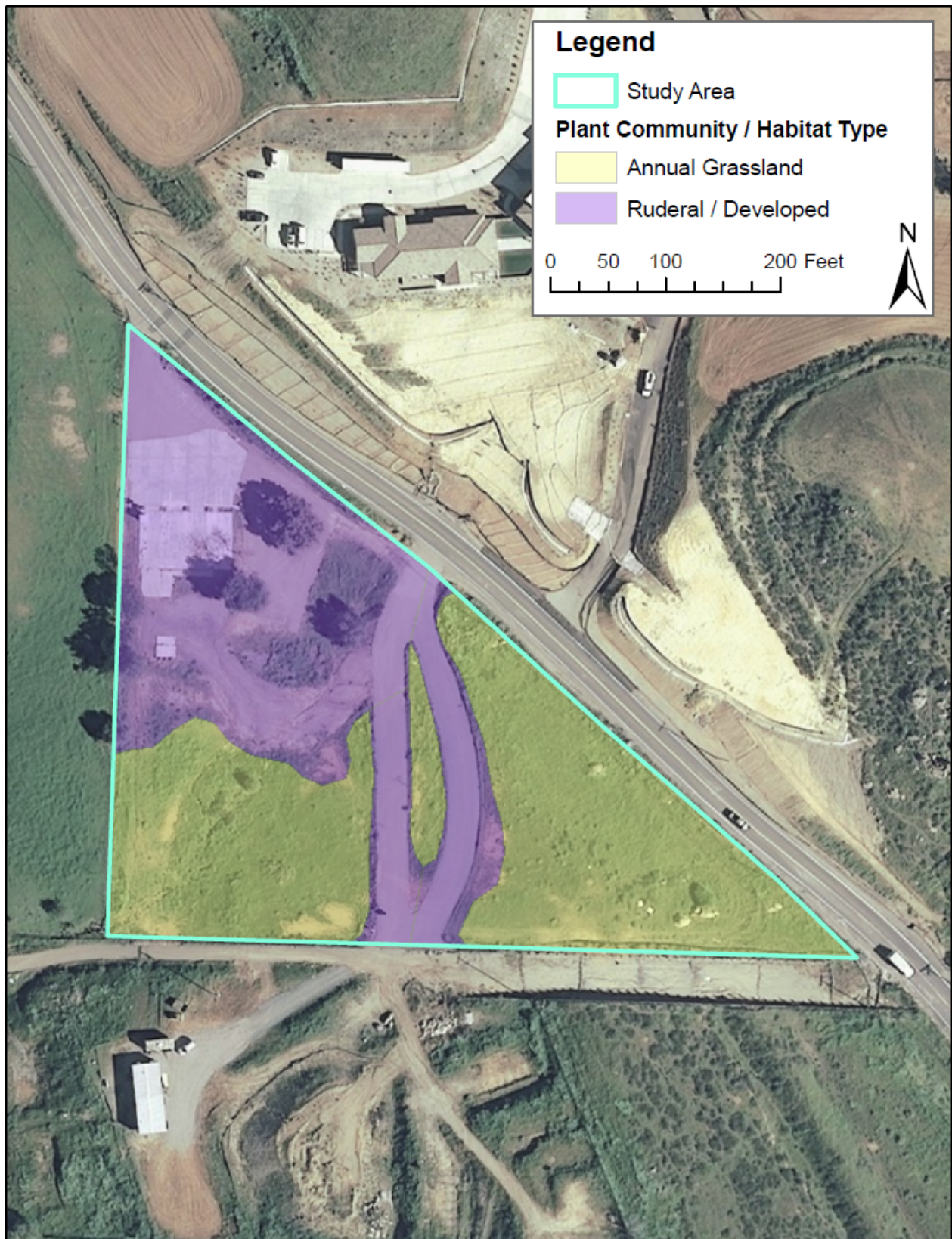
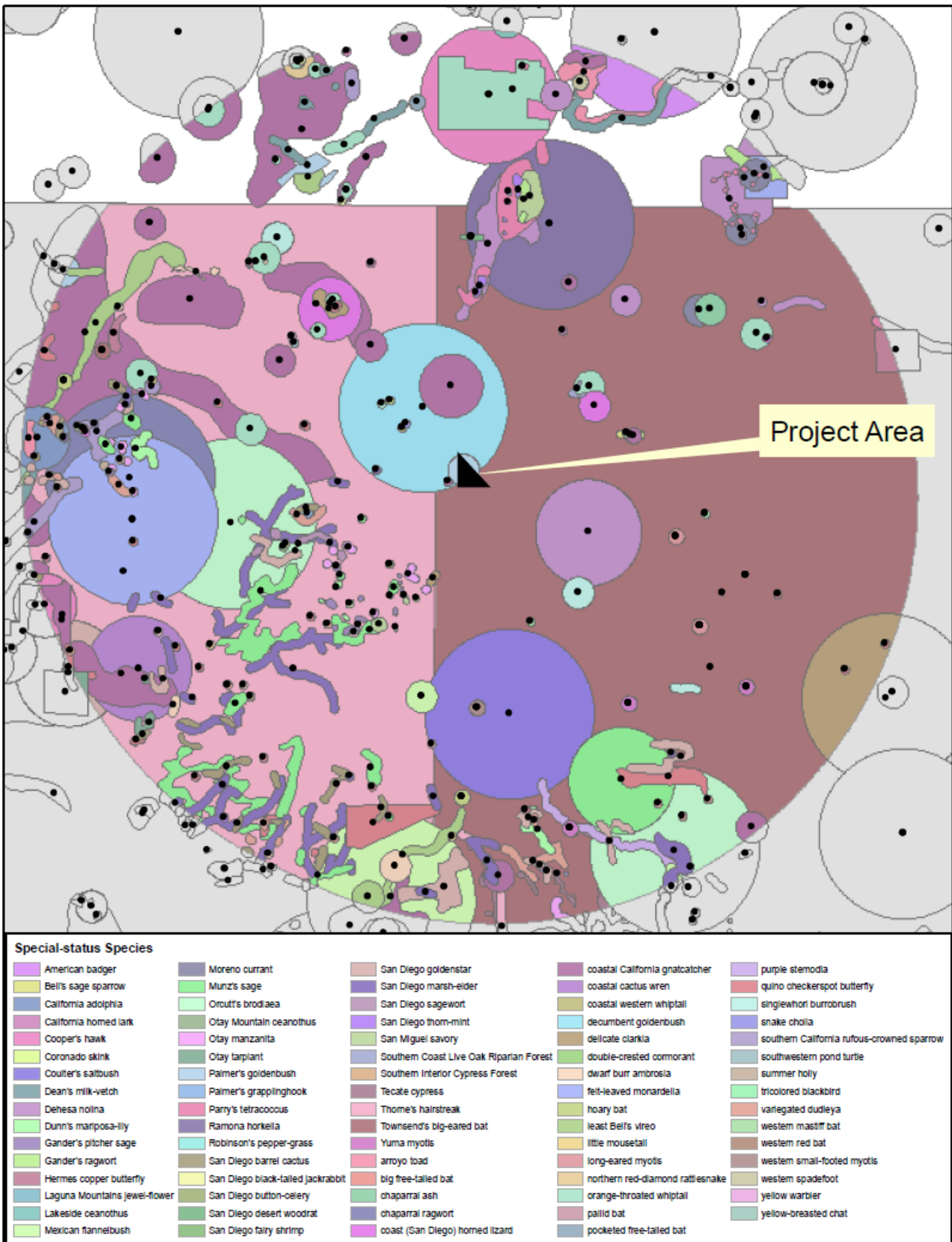
EXHIBIT 4: MAP OF VEGETATION COMMUNITIES / HABITAT TYPES WITHIN STUDY AREA

EXHIBIT 5: CNDDDB RECORDS OF SPECIAL-STATUS SPECIES WITHIN A 10-MILE RADIUS OF THE STUDY AREA



APPENDIX 3B

4-Acre Parcel Mid-Late Spring 2011 Surveys

**A Botanical Inventory of the 4 acre parcel
Jamul, San Diego County, California**

UTM #11-S: 512,050mE, 3,618,450mN

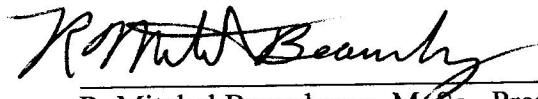
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PSBS # T707
2 June 2011



R. Mitchel Beauchamp, M.Sc., President
County of San Diego Certified Biological Consultant

A Botanical Inventory of the 4 acre parcel Jamul, San Diego County, California

INTRODUCTION

A biological inventory of a 4 acre, triangular-shaped parcel located on the northeastern side of the Jamul Rancheria trust land was made by the biological consulting staff of Pacific Southwest Biological Services, Inc., (Pacific Southwest) at the request of EDS of Sacramento. The inventory involved identification of all vascular plants observed on the parcels.

SITE PHYSIOGRAPHY

The parcel is located along the west side of State Route 94 and adjacent to Jamul Reservation trust land. The parcel is 4 acres in size. Geology mapped for the parcel is Jurassic-Triassic Metavolcanic rocks (Strand 1962). The soils mapped for the parcel are: Las Posas fine sandy loam, 5 to 9 percent (LpC2) in the southeastern corner of the parcel and Fallbrook sandy loam, 15 to 30 percent slopes, eroded (FaE2) in the majority of the parcel. The elevation range of the parcel is 947 at the northern end and 917 feet at the southwestern corner.

Rainfall prior to the survey was above normal rainfall averages for the 2010 – 2011 season.

METHODS

A botanical inventory of the parcel was performed by R. Mitchel Beauchamp, senior biologist of Pacific Southwest in compliance with U.S. Fish and Wildlife Service botanical survey guidelines (Appendix 2). That assessment was performed on 13 April 2011 and 1 June 2011 and involved walking about the site recording all plant taxa observed. A checklist of observed plants was compiled (Appendix 1).

VEGETATION

Disturbed Areas

The area of the parcel formerly occupied by the fire station and associated structures consists of paved areas and persisting landscaping.

Non-native Grassland

The southern, majority of the parcel is covered with non-native grasses, largely bromes and wild oats. The small knoll at the southeast corner has persisting Purple Needlegrass (*Nassella pulchra*), suggesting a cover of native grassland prior to the grazing and disturbance of the site.

SENSITIVE SPECIES

Plants

Several endemic plant species occur on the parcels. None are listed as Rare, Threatened or Endangered by state or federal agencies, however. Appendix 3 indicates those taxa known within the vicinity of the subject parcel.

FINDINGS

No sensitive plant taxa were encountered during the surveys and none were anticipated due to the prior disturbed condition of the site.

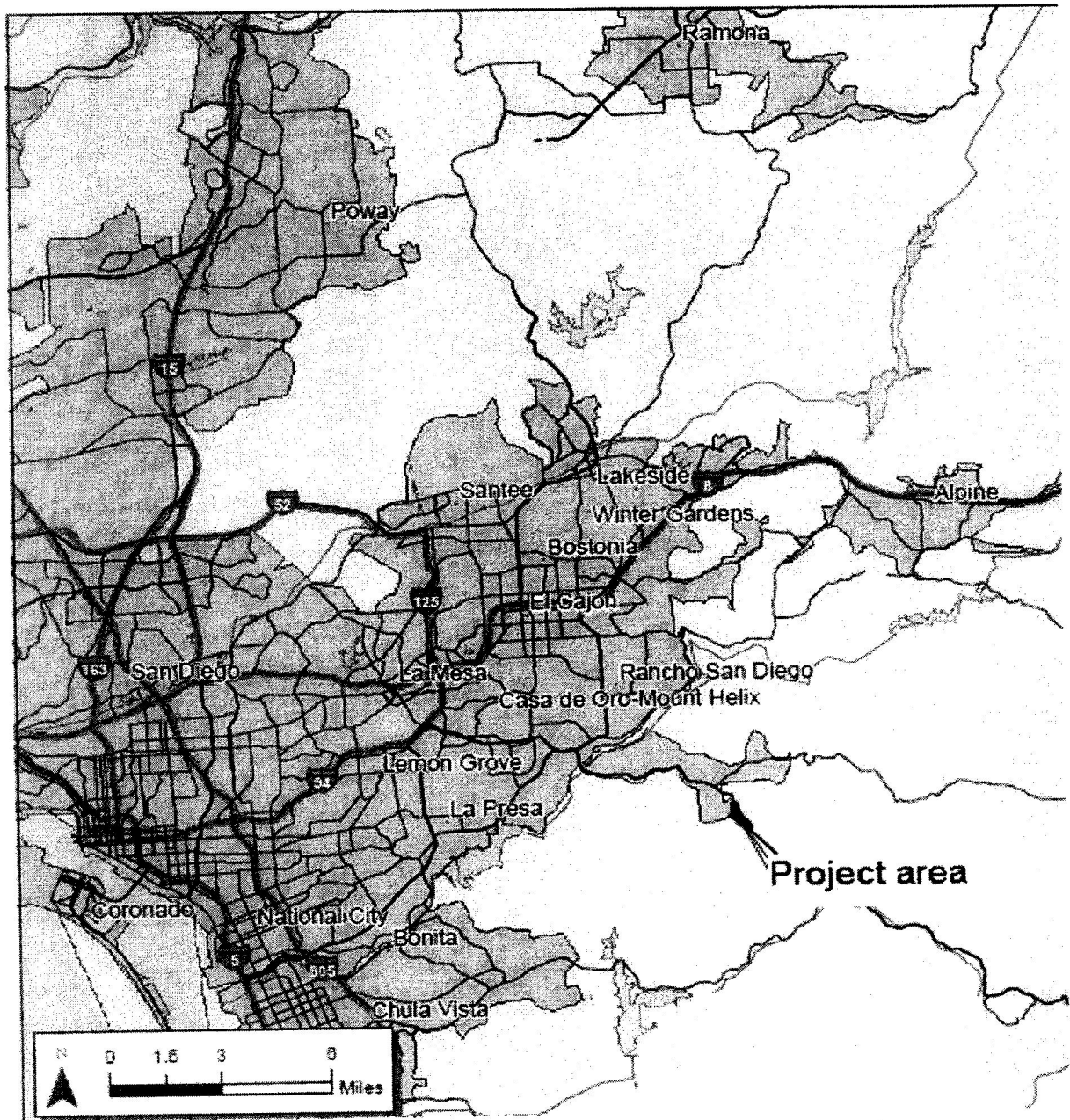


Figure 1.
Jamul Project Sites



4-23-11

MAP SOURCE: DELORME 3-D TOPO QUADS

PACIFIC SOUTHWEST BIOLOGICAL SERVICES, INC.

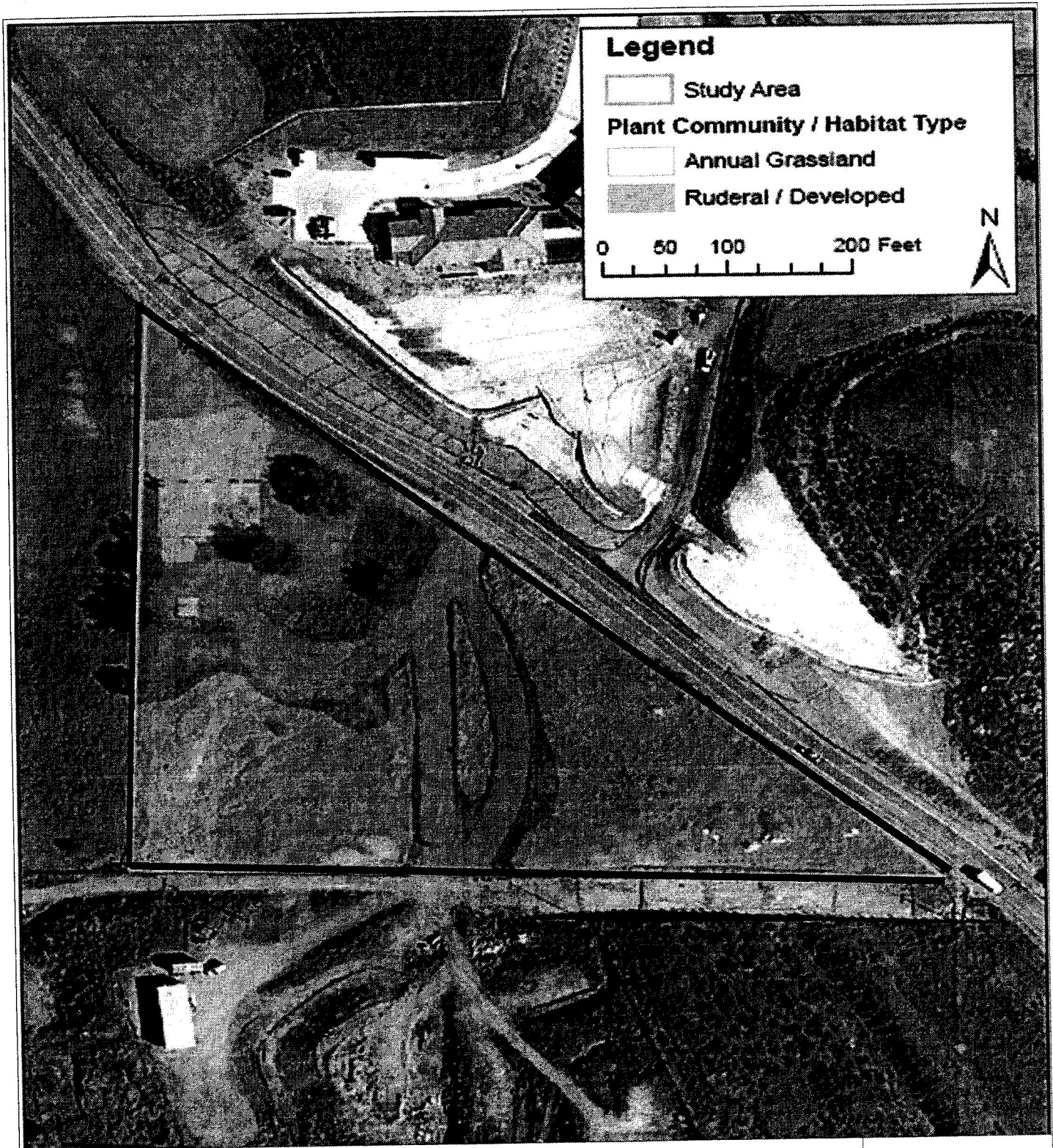


Figure 2.
Jamul Triangle Parcel



Appendix 1. Floral Checklist of Species Observed at the 4-acre Jamul Parcel

GYMNOSPERMS

Cupressaceae

Juniperus chinensis L. Cultivated Junper

Pinaceae

Pinus halepensis Mill. Aleppo Pine

DICOTYLEDONS

Adoxaceae

Sambucus mexicana Presl Mexican Elderberry

Aizoaceae

Aptenia cordifolia Bolus Red Apple Ice Plant

Anacardiaceae - Sumac Family

**Schinus molle* L. Peruvian Pepper Ttree

Asteraceae - Sunflower Family

Artemisia californica Less. California Sagebrush

**Cirsium vulgare* (Savi) Ten. Bull Thistle

**Conyza canadensis* (L.) Cronq. Hhorseweed

**Chrysanthemum coronarium* L. Garland Daisy

**Euryopsis pectinatus* Thunb. Bush Daisy

Gutierrezia sarothrae (Pursh) Britt. & Rusby Mmatchweed

**Hedypnois cretica* (L.) Willd. Crete Hhedypnois

Heterotheca grandiflora Nutt. Telegraphweed

**Hypochoeris glabra* L. Smooth Cat's-ear

Isocoma menziesii (Hook. & Arn.) Nesom var. *vernonioides* (Nutt.) Nesom Coastal Goldenbush

Lessingia filaginifolia (Hook. & Arn.) M.A. Lane var. *filaginifolia* Cudweed-aster

Boraginaceae - Borage Family

Amsinckia menziesii (Lehm.) Nelson & J.F. Macbr. var. *intermedia* (F. & M.) Ganders Rancher's Fireweed

Brassicaceae - Mustard Family

Guillenia lasiophylla (Hook. & Arn.) Greene California Mustard

**Hirschfeldia incana* (L.) Lagr.-Fossat Short-pod Mustard

**Raphanus sativus* L. Wild Radish

Caryophyllaceae - Pink Family

**Spergularia marina* (L.) Griseb. San Spurry

Chenopodiaceae - Goosefoot Family

**Salsola tragus* L. Russian -thistle

Euphorbiaceae - Spurge Family

Chamaesyce melanadenia (Torr.) Millsp. Sandmat

Eremocarpus setigerus (Hook.) Benth. Doveweed

Fabaceae - Legume Family

Lotus salsuginosus Greene ssp. *salsuginosus* Alkali Lotus

Lotus scoparius ssp. *brevialatus* (Ottley) Munz Deerweed

Lupinus bicolor Lindl. Mminiature Lupine

**Medicago polymorpha* L. California Bur-clover

Appendix 1. Floral Checklist of Species Observed at the 4-acre Jamul Parcel (continued)

Fagaceae - Oak Family

Quercus agrifolia Neé Coast Live Oak

Geraniaceae - Geranium Family

**Erodium botrys* (Cav.) Bertol. Long-beak Filaree

**Erodium cicutarium* (L.) L'Hér. Red-stem Filaree

**Erodium moschatum* (L.) L'Hér. White-stem Filaree

Lamiaceae - Mint Family

**Lavandula officinalis* L. Lavander

**Marrubium vulgare* L. Horehound

Malvaceae - Mallow Family

**Malva parviflora* L. Cheeseweed

Platanaceae

**Platanus acerifolia* L. London Plane Tree

Polygonaceae - Buckwheat Family

Eriogonum fasciculatum Benth. var. *fasciculatum* Flat-top Buckwheat

Solanaceae - Nightshade Family

Datura wrightii Regel Western Jimsonweed

**Nicotiana glauca* Grah. Tree Tobacco

MONOCOTYLEDONS

Arecaceae - Palm Family

**Washingtonia robusta* Wendel. Mexican Fan Palm

Amaryllidaceae - Amaryllis Family

**Amaryllis belladonna* L. Pink Lady

Poaceae - Grass Family

**Avena barbata* Link Slender Wild Oat

**Bromus diandrus* Roth Ripgutgrass

**Bromus hordeaceus* L. Soft Chess

**Bromus madritensis* L. ssp. *rubens* (L.) Husnot Red Brome

**Hordeum murinum* ssp. *leporinum* (Link) Arcang. Hare Barley

**Lamarckia aurea* (L.) Moench Golden-top

**Lolium perenne* L. Perennial Ryegrass

Nassella pulchra (A.S. Hitchcock) Barkworth Purple Needlegrass

**Pennisetum setaceum* Forsk. Fountain Grass

**Schismus barbatus* (L.) Thell. Mediterranean Schismus

**Vulpia myuros* (L.) Gmelin var. *hirsuta* (Hackett) Asch & Graetoner Foxtail Fescue

* - Denotes non-native plant taxa

Appendix 2. Federal Botanical survey Guidelines

Federal protocol for botanical surveys has been promulgated (September 23, 1996). These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed, or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.
2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.
3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.
4. Report results of botanical field inventories that include:
 - a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species
 - b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name
 - c. survey dates and survey methodology(ies)
 - d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made
 - e. a comprehensive list of all vascular plants occurring on the project site for each habitat type
 - f. current and historic land uses of the habitat(s) and degree of site alteration
 - g. presence of target species off-site on adjacent parcels, if known
 - h. an assessment of the biological significance or ecological quality of the project site in a local and regional context
5. If target species is(are) found, report results that additionally include:
 - a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project
 - b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors.
 - c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could

provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports.

d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

Appendix 3. Sensitive Plant Taxa know from the Vicinity of the Subject Parcel

Scientific and Common Name	Sensitivity Code & Status (Federal, State, Local, other)	San Diego County List/ Group	Habitat Preferences/ Requirements	Verified On Site Yes/No (Direct/ Indirect Evidence)	Potential to Occur On Site (Obs-LMH)	Factual Basis for Determination of Occurrence Potential
<i>Acanthomintha ilicifolia</i> San Diego Thorn-mint	FT/SE/1B (2-3-2)	List A	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, endemic to active vertisol clay soils of mesas & valleys, usu on clay lenses within grassland or chaparral communities, 10-935 m.	NO	Low	Site lacks clay soils
<i>Adophia californica</i> California Adolphia	None/None/2 (1-3-1)	List B	Chaparral, coastal sage scrub, valley & foothill grassland, from sandy/gravelly to clay soils within grassland, coastal sage scrub, or chaparral; various exposures, 15-300 m.	NO	Low	Site lacks clay soils
<i>Ambrosia monogyra</i> Singlewhort Burrobush	None/None/2.2			NO	Moderate	Not observed In drainages
<i>Ambrosia pumila</i> San Diego Ambrosia	FE/None/1B (3-3-2)	List A	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, esp in sandy loam or clay soil, in valleys; persists where disturbance has been superficial, 20-415 m.	NO	Low	Site lacks alluvial bench formations
<i>Arctostaphylos otayensis</i> Otay Manzanita	None/None/1B (3-2-3)	List A	Chaparral, cismontane woodland/metavolcanic; 275-1700 m.	NO	Low	Site lacks Chaparral Vegetation and rocky substrate
<i>Artemisia palmeri</i> San Diego Sagewort	None/None/2 (2-2-1)	List B	Chaparral, coastal sage scrub, riparian scrub & woodland/sandy, mesic, 15-915 m.	NO	High	Not observed in riparian systems in the area
<i>Astragalus deanei</i> Dean's Milk-vetch	FSC/None/1B (3-3-3)	List A	Chaparral, coastal scrub, riparian forest, endemic to SD Co., esp open brushy s-facing slopes in Diegan coastal sage, occ on recently burned hillsides, 75-670 m.	NO	Low	Site is outside plant's range in middle Sweetwater River drainage
<i>Atriplex coulteri</i> Coulter's Saltbush	None/None/1B(2-2-2)	List A	Coastal bluff scrub, coastal dunes, coastal scrub, valley & foothill grassland, esp. on ocean bluffs, ridge tops, alkaline low places, 10-440 m.	NO	Low	Site lacks coastal alkaline conditions

<i>Brodiaea orcuttii</i> Orcutt's Brodiaea	FSC/None/1B (1-3-2)	List A	Vernal pools, valley & foothill grassland, closed-cone conif forest, cismontane woodland, chaparral, meadows, esp mesic, clay habitats, occ serpentine, in vernal pools & small drainages, 30-1615 m.	NO	Moderate	Site lacks undisturbed clay soils
<i>Calochortus dunnii</i> Dunn's Mariposa Lily	None/Rare/1B (2-2-2)	Narrow Endemic, List A	Closed-cone conif forest, chaparral, esp. on gabbro or metavolcanic soils; also known from sandstone, oft assoc w/chaparral, 375-1830 m.	NO	Low	Site lacks metavolcanic or significant areas of gabbroic-derived soils
<i>Ceanothus otayensis</i> Otay Mountain Ceanothus	None/None/1B (3-2-2)		Chaparral (metavolcanic or gabbroic), known in CA only fr San Miguel & Otay Mtns., 600-1100 m.	NO	Low	Site lacks Chaparral Vegetation and rocky substrate
<i>Clarkia delicata</i> Delicate Clarkia	None/None/2 (1-2-1)	List B	Cismontane woodland, chaparral, only in SD Co., 235-1,000 m.	NO	Low	Site lacks intact woodland understory habitat
<i>Comarostaphylos diversifolia</i> ssp. <i>diversifolia</i> Summer-Holly	FSC/None/1B (2-2-2)	List A	Chaparral, oft in mixed chaparral in CA, sometimes post-burn, 30-550 m.	NO	Low	Site lacks Chaparral vegetation and rocky substrate
<i>Cordylanthus orcuttianus</i> Orcutt's Bird's-beak	None/None/2 (3-3-1)	List B	Coastal scrub. In CA, known only fr SD Co.; also in Baja. Found in coastal scrub assoc on slopes, also reported fr intermittent moist swales, & in washes, 100-200 m.	NO	Low	Site lacks alkaline and bentonitic soils
<i>Cupressus forbesii</i> Tecate Cypress	FSC/None/1B (3-3-2)	List A	Closed-cone conif forest, chaparral, esp. on north-facing slopes, groves oft assoc w/chaparral, 250-1500 m.	NO	Low	Site lacks Chaparral vegetation and rocky substrate
<i>Deinandra</i> [<i>Hemizonia</i>] <i>conjugens</i> Otay Tarplant	FT/SE/1B (3-3-2)	Narrow Endemic, List A	Coastal scrub, valley & foothill grassland. In CA, known only fr SD Co. Coastal plains, mesas, river bottoms, oft in open dist areas, clay soils, 25-300 m.	NO	Low	Site lacks undisturbed clay soils
<i>Dudleya variegata</i> Variegated Dudleya	FT/SE/1B(3-3-2)	Narrow Endemic, List A	Chaparral, coastal scrub, cismontane woodland, valley & foothill grassland, vernal pools. In CA, known only fr SD Co. Rocky or clay soils, vernal pool margins, 3-550 m.	NO	Low	Site lacks undisturbed clay soils
<i>Ericameria palmeri</i> ssp. <i>palmeri</i> Palmer's Goldenbush	None/None/1B (3-2-1)	Narrow Endemic, List B	Coastal scrub, chaparral, granitic soils, steep hillsides, mesic areas; 100-600 m.	NO	Moderate	Occurs as a single stand in alignment of open field route to west.

<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego Button-celery	FE/SE/1B (2-3-2)	List A	Vernal pools, coastal scrub, valley & foothill grassland, esp in SD mesa hardpan & claypan vernal pools & southern interior basalt flow vernal pools; usu surr by scrub, 15-620 m	NO	Low	Site lacks level areas and vernal pool formations
<i>Ferocactus viridescens</i> San Diego Barrel Cactus	FSC/None/2 (1-3-1)	List B	Chaparral, Diegan coastal scrub, valley & foothill grassland, oft on exposed, level or s-facing sloping areas; oft in coastal scrub near crest of slopes, 3-485 m.	NO	Low	Site lacks intact Coastal Sage Scrub vegetation and lies too far east of know range
<i>Fremontodendron mexicanum</i> Mexican Flannelbush	FE/Rare/1B (3-3-2)		Closed-cone conif forest, chaparral, cismontane woodland. Usu scattered along borders of creeks or in dry cyns; sometimes on gabbro soils, 10-490 m.	NO	Low	Site lacks Chaparral habitat and rocky substrate
<i>Harpagonella palmeri</i> Palmer's Grapplinghook	None/None/4 (1-2-1)	List B	Chaparral, coastal scrub, valley & foothill grassland, esp clay soils, open grassy areas, 15-830 m.	NO	Low	Site lacks clay soils
<i>Isocoma menziesii</i> var. <i>decumbens</i> Decumbent Goldenbush	None/None/1B (2-2-2)	List A	Coastal sage, sandy soil, often in disturbed sites, 10-910 m.	NO	Low	Site lacks intact Coastal Sage Scrub vegetation
<i>Iva hayesiana</i> San Diego Marsh-elder	FSC/None/2 (2-2-1)	List B	Marshes & swamps, playas, esp in river washes, 10-500 m.	NO	Moderate	Not observed in channels on site or in the vicinity
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's Goldfields	FSC/None/1B (2-3-2)	List A	Coastal salt marshes, playas, valley & foothill grassland, vernal pools, usu in alkaline soils in playas, sinks, grassland, 1-1400 m.	NO	Low	Site lacks mesic alkaline habitats
<i>Lepechinia ganderi</i> Gander's Pitcher Sage	None/None/1B (3-1-2)	Narrow Endemic, List A	Closed-cone conif forest, chaparral, coastal scrub, valley & foothill grassland/gabbroic or metavolcanic. SD Co., Baja. Known in CA fr fewer than 10 occurs, 305-1005 m.	NO	Low	Site lacks Chaparral Vegetation and rocky substrate
<i>Lepidium virginicum</i> var. <i>robinsonii</i> Robinson's Pepper-grass	None/None/1B (3-2-2)	List A	Alkaline sites on the coastal sides of the main mountain ranges, below 800 m..	NO	Low	Site lacks undisturbed Coastal Sage Scrub
<i>Muilla clevelandii</i> San Diego Goldenstar	FSC/None/1B (2-2-2)	List A	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, esp. mesa grasslands, scrub edges; under 50 m.	NO	Low	Site lacks intact clay soils

<i>Myosurus minimus</i> ssp. <i>apus</i> Little Mousetail	FSC/None/3 (2-3-2)	List A	Vernal pools. This ssp. has taxonomic probs. Distinguishing betw this and <i>M. sessilis</i> is difficult. Hybrid? Alkaline soils, 20-640 m.	NO	Low	Site lacks level land and vernal pool formations
<i>Nama stenocarpum</i> Mud Nama	None/None/2 (3-2-1)	List B	Marshes & swamps. Lake shores, river banks, intermitt. wet areas, 5-500 m.	NO	Low	Site lacks ponding features
<i>Navarretia fossalis</i> Spreading Navarretia	FT/None/1B (2-3-2)	List A	Vernal pools, chenopod scrub, marshes & swamps, playas, esp in SD hardpan & SD claypan vernal pools, in swales & vernal pools, often surr. by other habitat types, 30-1300 m.	NO	Low	Site lacks level land and vernal pool formations
<i>Opuntia californica</i> var <i>californica</i> Snake Cholla	None/None/1B (3-3-2)	Narrow Endemic, List A	Chaparral, coastal scrub, 30-150 m.	NO	Low	Site lacks intact shrubland vegetation
<i>Salvia munzii</i> Munz' Sage	None/None/2 (2-2-1)	List B	Chaparral, coastal sage scrub. Known only fr SD Co. & Baja. Rolling hills & slopes, 120-1065 m.	NO	Low	Site lacks Metavolcanic-derived soils
<i>Satureja chandleri</i> San Miguel Savory	None/None/4 (1-2-2)	List D	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley & foothill grassland, esp gabbroic or metavolcanic substrate, 120-1005 m.	NO	Low	Site lacks Chaparral and rocky substrate
<i>Senecio aphanactis</i> Rayless Ragwort	None/None/2 (3-2-1)	List B	Chaparral, cismontane woodland, coastal scrub/alkaline, 15-800 m. Rare in LA, OR, & RIV Cos.	NO	Low	Site lacks undisturbed habitats
<i>Senecio ganderi</i> Gander's Ragwort	FSC/SR/1B (3-2-3)	List A	Chaparral, esp. recently burned sites, gabbroic outcrops, 400-1200 m.	NO	Low	Site lacks significant areas of gabbroic-derived soils
<i>Stemodia durantifolia</i> Purple Stemodia	None/None/2 (3-3-1)		Sonoran desert scrub (often mesic, sandy), 180-300 m.	NO	Low	Site lacks ponding sites
<i>Streptanthus bernardinus</i> Laguna Mountains Jewelflower	None/None/None	List A	Chaparral, lower montane conif forest, 670-2500 m.	NO	Low	Site lacks Chaparral vegetation
<i>Tetracoccus dioicus</i> Parry's Tetracoccus	FSC/None/1B (3-2-2)	List A	Chaparral, coastal scrub, esp stony fine sandy decomposed gabbro soil, 165-1000 m.	NO	Low	Site lacks significant areas of gabbroic-derived soils

APPENDIX 3C

Access Roadways Early Spring 2011 Surveys

BOTANICAL SURVEY FOR THE JAMUL ACCESS PROJECT, SAN DIEGO COUNTY, CALIFORNIA

May 2011

Prepared for:

Environmental Data Systems, Inc.

and

Jamul Indian Village

Prepared by:

**Natural Investigations Company
1017 Carter Street, Folsom, CA 95630**



1. INTRODUCTION

1.1. PROJECT LOCATION AND DESCRIPTION

The Project location is just south of the town of Jamul in unincorporated San Diego County (hereafter, "County"), California (Exhibit 1). The Study Area of this assessment consists of a 20-acre road corridor project area that is an expansion of the CalTrans right-of-way of State Route 94, from a 1/4-mile north of Melody Road to a 1/2 mile south of the Jamul Indian Village (Indian reservation), and the frontage and driveways of affected parcels and ancillary roads (especially Melody Road). These affected parcels consist primarily of a 4-acre parcel (APN 597-06-004), an 87-acre parcel (APN 597-06-005); and a 10-acre parcel (APN 597-04-213) (Exhibit 2). The project consists of an access road from State Route 94 to the Jamul Indian Village; however, design plans have not yet been finalized.

1.2. PURPOSE AND SCOPE OF ASSESSMENT

Natural Investigations Co. has prepared this botanical survey for Environmental Data Systems Inc., and its Client, Jamul Indian Village, in support of the environmental compliance process.

The scope of work is to perform the first of 3 botanical surveys (early spring, mid-spring, and late spring season surveys) during the 2011 blooming period within the Study Area, so that all possible special-status plant species might be detected. These botanical reports will be appendicized to a separate Biological Assessment for consultation with U.S. Fish and Wildlife Service and California Department of Fish and Game.

Surveys were floristic in nature and conducted in a manner that would ensure location of any rare, threatened, or endangered species that may be present in the Study Area. Surveys for rare plants were conducted in accordance with the standardized guidelines issued by the U.S. Fish and Wildlife Service (1996), California Department of Fish and Game (2000), and the California Native Plant Society (2001). This report conforms to the scientific writing style established by Council of Science Editors (2006).

2. ENVIRONMENTAL SETTING

The Study Area is located within the Peninsular Ranges geographic subregion, which is contained within the Southwestern geographic subdivision of the larger California Floristic Province (Hickman 1993). The region is in climate Zone 21 – "Ocean-influenced southern California", characterized by infrequent frost, with mild to hot, dry summers and mild, wet winters moderated by marine air influx (Hickman, 1993; Brenzel, 2001). The topography of the Study Area is rolling and slopes generally to the south and southwest. The elevation ranges from approximately 800 feet to 1,000 feet above mean sea level. The general direction of surface runoff in the Study Area is to the southwest via an unnamed, intermittent drainage tributary to Jamul Creek.

Land uses in the Study Area are a mixture of residential estates on large lots and denser urban subdivisions, cattle and horse pastures, and fallow lands/open space. Weeds and tall grass appear to have been periodically mowed or cut back.

The surrounding land uses are as follows: to the south, the Rancho Jamul Ecological Reserve and the Hollenbeck Canyon Wildlife Area, and private rangeland; to the north, residential subdivisions and the town of Jamul; to the east, the new fire station, private estates (Peaceful Valley Ranch Estates), and hayfields; and to the west, cattle pasture and private estates.

3. METHODOLOGY

3.1. PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey the following information sources were reviewed:

- Any readily-available previous biological resource studies pertaining to the Study Area or vicinity
- United States Geologic Service (USGS) 7.5 degree-minute topographic quadrangles of the Study Area and vicinity
- Aerial photography of the Study Area
- California Natural Diversity Database (CNDDB), electronically updated monthly by subscription to CDFG.

The following biological assessments were previously performed within the Study Area and vicinity:

- Beauchamp, R.M. 2000. A biological inventory and wetlands delineation of the Jamul Rancheria Parcels in Jamul, San Diego County, California. Pacific Southwest Biological Services Inc.
- Bureau of Indian Affairs. 2003. Jamul Indian Village Environmental Impact Statement. [Floristic surveys conducted in 2001-2002 of the Jamul Indian Village project area (the 87-acre parcel, the 4-acre parcel, the 10-acre parcel, and the Jamul Indian Village)]
- Natural Investigations Company. 2006. Jamul Indian Village Off-reservation Biological Resources Assessment. Volume I, Appendix D, in Jamul Indian Village (2006) Final TEIS/R. [Floristic surveys conducted in 2006 on the Highway 94 corridor and 4-acre parcel]

3.2. FIELD SURVEY

Surveys were floristic in nature and conducted in a manner that would ensure location of any rare, threatened, or endangered species that may be present in the Study Area. Surveys for rare plants were conducted in accordance with the standardized guidelines issued by the U.S. Fish and Wildlife Service (1996), California Department of Fish and Game (2000), and the California Native Plant Society (2001). This report conforms to the scientific writing style established by Council of Science Editors (2006).

Dr. G.O. Graening (see qualifications in Section 10) conducted the botanical field surveys on March 23 and 24, 2011. Dr. Graening also performed botanical surveys of the Study Area, or portions thereof, in 2006, 2007, and 2009, and last year (February 24 2010 and May 4, 2010). A complete coverage, variable-intensity pedestrian survey was performed of the Study Area, modified to account for differences in terrain, vegetation density, and visibility.

Survey efforts emphasized the search for any special-status species or habitats that had documented occurrences, in databases queried, within the Study Area or vicinity. All visible flora observed were recorded in a field notebook, and identified to the lowest possible taxon; a hand lens was used where necessary. When a specimen could not be identified *in situ*, a photograph or voucher specimen (depending upon scientific permit requirements) was taken and identified later in the laboratory using a dissecting scope where necessary. Dr. Graening holds the following scientific collection permits: CDFG Scientific Collecting Permit No. SC-006802 and CDFG Plant Voucher Specimen Permit 09004. Taxonomic determinations and nomenclature followed these references: Pavlik (1991), Hickman (1993), Brenzel (2001), Stuart and Sawyer (2001), Lanner (2002) Calflora (2010), University of California at Berkeley (2010a,b). Scientific names are introduced first and common names are used thereafter for ease of reading.

Plant specimens difficult to identify were sent fresh to the Jepson Herbarium (University of California at Berkeley), where senior botanist Margriet Wetherwax made final determinations (see Section 10 for qualifications). Any collected plant specimens worthy of curation were deposited in the Jepson Herbarium by M. Wetherwax.

3.3. MAPPING AND OTHER ANALYSES

Locations of special status species' occurrences and habitat boundaries within the Study Area were recorded on color aerial photographs, and then digitized to produce the final habitat maps. The boundaries of potentially jurisdictional water resources within the Study Area were identified and measured in the field, and similarly digitized to calculate acreage and to produce informal delineation maps. Geographic analyses were performed using geographical information system software (ArcGIS 9.3, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors), were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995).

4. RESULTS

4.1. INVENTORY OF FLORA FROM FIELD SURVEY

All plants sighted during the field surveys of the Study Area conducted March 23 and 24, 2011, are compiled in Exhibit 3. No special-status plant species were observed within the Study Area during these surveys. Note that the dates of field surveys may not coincide with every blooming period of regionally-occurring special-status plant species.

4.2. VEGETATION COMMUNITIES

The Study Area currently contains 4 terrestrial natural community/habitat types, listed in descending areal preponderance: ruderal/developed; annual grassland, riparian, and coastal scrub (see Exhibit 4)

Ruderal and urbanized areas constitute the majority of the Study Area, and consist of disturbed or converted natural habitat that is now either in a weedy and barren (ruderal) state, plowed, graded, or urbanized with pavement, landscaping, and structure and utility placement. Vegetation within this habitat type consists primarily of nonnative weedy or invasive ruderal species or ornamental plants lacking a consistent community structure. This habitat type provides limited resources for wildlife and is utilized primarily by common species tolerant of human activities.

Annual grassland habitat consists of open fields of non-native pasture grasses and weedy forbs. These annual grasslands have replaced native habitats of perennial bunchgrasses or coastal scrub. Grazing disturbances, rather than periodic wildfires, keep this plant community from undergoing successional changes to woodland. Plant species common in this community include European annual grasses (*Avena*, *Bromus*, *Hordeum*, *Festuca*). Common forbs include turkey mullein (*Eremocarpus setigerus*), yellow star thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). The conversion of native habitats to annual grasslands greatly reduces wildlife biodiversity and habitat value. However, common, disturbance-tolerant wildlife species can occur in these habitats.

Two special-status communities were reported by CNDDDB (CDFG 2010) within a 5-mile radius of the Study Area: Southern Coast Live Oak Riparian Forest and Southern Interior Cypress Forest. No special-status communities are present with the Study Area. Southern Coast Live Oak Riparian Forest is present in the Study Area (on the 87-acre parcel, the 10-acre parcel, and the Jamul Indian Village). Patches of coastal scrub occur throughout the Study Area.

4.3. LISTED SPECIES / SPECIAL-STATUS SPECIES

For the purposes of this assessment, "special status" is defined to be species that are of management concern to state or federal natural resource agencies, and include those species that are:

- Listed as endangered, threatened, proposed, or candidate for listing under the Federal Endangered Species Act;

Historical Special-status Species' Occurrences

A list of special-status plant and animal species that historically occurred within the Study Area and vicinity was compiled based upon the following:

- Any previous and readily-available biological resource studies pertaining to the Study Area;
- Informal consultation with USFWS by generating an electronic Species List (available on the applicable Field Office website); and
- A spatial query of the CNDDDB.

Floristic surveys conducted in 2001-2002 of the Jamul Indian Village project area (the 87-acre parcel, the 4-acre parcel, the 10-acre parcel, and the Jamul Indian Village), did not detect any threatened or endangered species (BIA, 2003). Floristic surveys conducted in 2006 for SR-94 traffic improvements, which included the Alternative 1 and 2 Study Areas (i.e., the Highway 94 corridor and 4-acre parcel), did not detect any rare, threatened, or endangered plant species in the Study intersections (Natural Investigations Co., 2006). Floristic surveys conducted in 2007, which included the Alternative 1 and 2 study areas (i.e., the Highway 94 corridor and 4-acre parcel), did not detect any rare, threatened, or endangered plant species (Natural Investigations Co., 2007a). Floristic surveys conducted in 2009 did not detect any special-status species (Natural Investigations Co., 2009). Floristic surveys conducted in 2010 did not detect any rare, threatened, or endangered plant species (Natural Investigations Co., unpub. data).

The CNDDDB was spatially queried and any reported occurrences of special-status species were plotted in relation to the Study Area boundary using GIS software (Exhibit 5). The CNDDDB reported special-status species with historical occurrences within the Study Area. Within a 5-mile buffer of the Study Area boundary, the CNDDDB reported over 300 special-status species occurrence records.

The County's SanBIOS database (2010) was also spatially queried and any reported occurrences of special-status species plotted. The County's database reported no special-status species with a historical occurrence within the Study Area. Several special-status species occurrences were reported by SanBIOS database on adjacent properties.

A federal species list was also generated from the USFWS website using the USGS 7.5-minute quadrangle in which the Study Area is located, plus the surrounding quadrangles.

Special-status Species Observed During Field Survey

No special-status plant species were observed within the Study Area during the most recent field surveys (March 23 and 24, 2011).

Analyses of Likelihood of Occurrence of Listed Species / Special-status Species

4.3.0.1. *Listed Plant Species*

Several plants designated as special status were reported in the vicinity of the Study Area by the CNDDDB, and suitable habitats may exist within the Study Area: San Diego sagewort; Otay tarplant; Palmer's grapplinghook; Ramona horkelia; decumbent goldenbush; Gander's pitcher sage; felt-leaved monardella; San Miguel savory. Special-status plants are not expected to thrive in the Study Area because of the preponderance of invasive and non-native plants, and habitat degradation associated with urbanization; previous botanical surveys did not detect any rare plants.

San Diego Thorn Mint (*Acanthomintha ilicifolia*)

San Diego Thorn Mint is an annual herb that occurs on clay, gabbro, and calcareous soils in openings within coastal sage scrub, chaparral, and native grassland habitats of coastal San Diego County. Potentially suitable habitat for San Diego thorn mint does not occur within the Study Area. Non-paved lands within the Study Area are dominated by non-native annual grasses. A botanical inventory of the

FEIS project site (the 87-acre, 10-acre, 4-acre parcels) in April 2000 by Beauchamp did not detect this plant. This plant was also not detected in subsequent surveys (Natural Investigations 2006, 2007a), including the current botanical survey for this study.

Otay Tarplant (*Deinandra conjugens*)

The Otay tarplant, federally listed as endangered, is a glandular, aromatic, annual herb; the blooming period for this species is May to June (CNPS, 2010). The majority of occurrences are associated with clay soils in grasslands, coastal sage scrub, or maritime succulent scrub at elevations between 25 and 300 m. This species has a limited distribution consisting of approximately 25 historical populations near Otay Mesa in southern San Diego County and one population in Mexico near the U.S. border; the Study Area is outside of the designated critical habitat. Some grassland habitat does occur within the Study Area, but the plant has never been detected during field surveys over the last decade.

Dwarf Burr Ambrosia (*Ambrosia pumila*)

Dwarf burr ambrosia is federally listed as threatened. CDFG (2010a) describes its habitat requirements as, “chaparral, coastal scrub, valley and foothill grassland; sandy loam or clay soil; in valleys; persists where disturbance has been superficial; sometimes on margins or near vernal pools.” Numerous botanical surveys over the last decade have not detected this species.

Mexican flannelbush (*Fremontodendron mexicanum*)

Mexican flannelbush is federally listed as endangered. CDFG (2010a) describes its habitat requirements as, “closed-cone coniferous forest, chaparral, cismontane woodland; usually scattered along the borders of creeks or in dry canyons; sometimes on gabbro soils; 10-490m.” Numerous botanical surveys over the last decade have not detected this species.

5. CONCLUSION

Numerous common native and non-native plants were sighted during the field surveys of the Study Area on March 23 and 24, 2011. No special-status plant species were observed within the Study Area during these surveys. Because that the dates of field surveys may not coincide with every blooming period of regionally-occurring special-status plant species, additional botanical surveys are recommended. These mid-spring and late-spring season surveys are in progress, and are being performed by Pacific Southwest Biological Services, Inc.

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7. QUALIFICATIONS OF BIOLOGIST

REPORT AUTHOR, FIELD SURVEYOR: G.O. Graening, Ph.D.

G. O. Graening holds a PhD in Biological Sciences and a Master of Science in Biological and Agricultural Engineering. Dr. Graening is an adjunct Professor at California State University at Sacramento, and is an active researcher in the area of conservation biology and groundwater ecology; his publication list is available online at <http://www.csus.edu/indiv/g/graeningg/pubs.htm>. Dr. Graening is also a Certified Arborist (ISA # WE-6725A) and a Registered Environmental Assessor I (DTSC # 08060). Dr. Graening has 12 years of experience in environmental assessment, including independent contractual work as well as previous employment with *The Nature Conservancy*, Tetra Tech Inc., and CH2M Hill, Inc.

CONSULTING TAXONOMIST: Margriet Wetherwax, M.S.

Ms. Wetherwax holds a Masters Degree in Advanced Plant Systematics and a Bachelor of Science in Botany. Since 1995, Ms. Wetherwax has been employed at the Jepson Herbarium (University of California at Berkeley) as a plant taxonomist and museum scientist. Ms. Wetherwax is managing editor and illustration editor of the Jepson Flora Project and The Jepson Desert Manual, as well as a contributing author to The Jepson Manual: Higher Plants of California and the Flora of North America North of Mexico Project.

8. EXHIBITS

EXHIBIT 1: LOCATION OF PROJECT

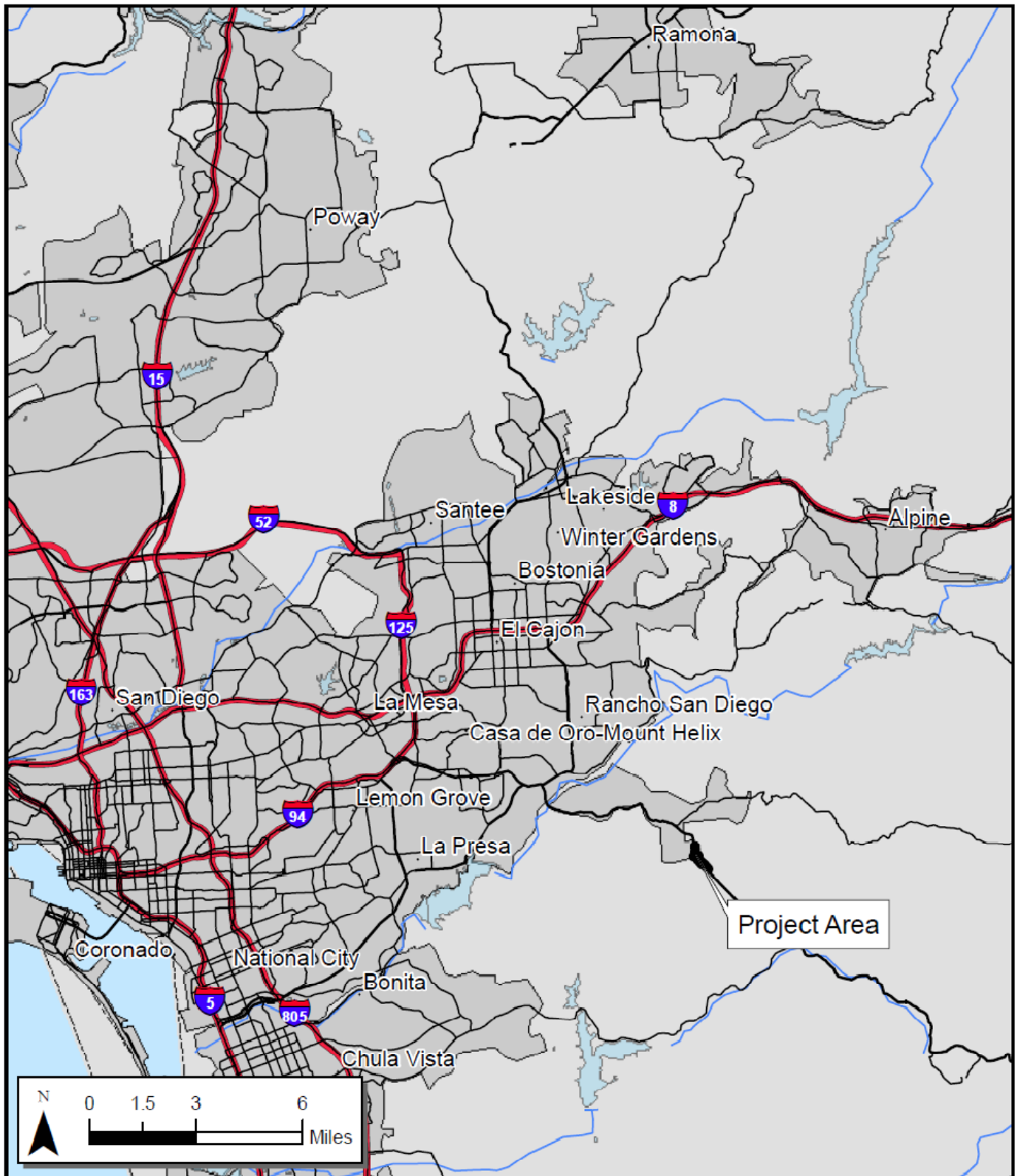


EXHIBIT 2: AERIAL PHOTO OF STUDY AREA

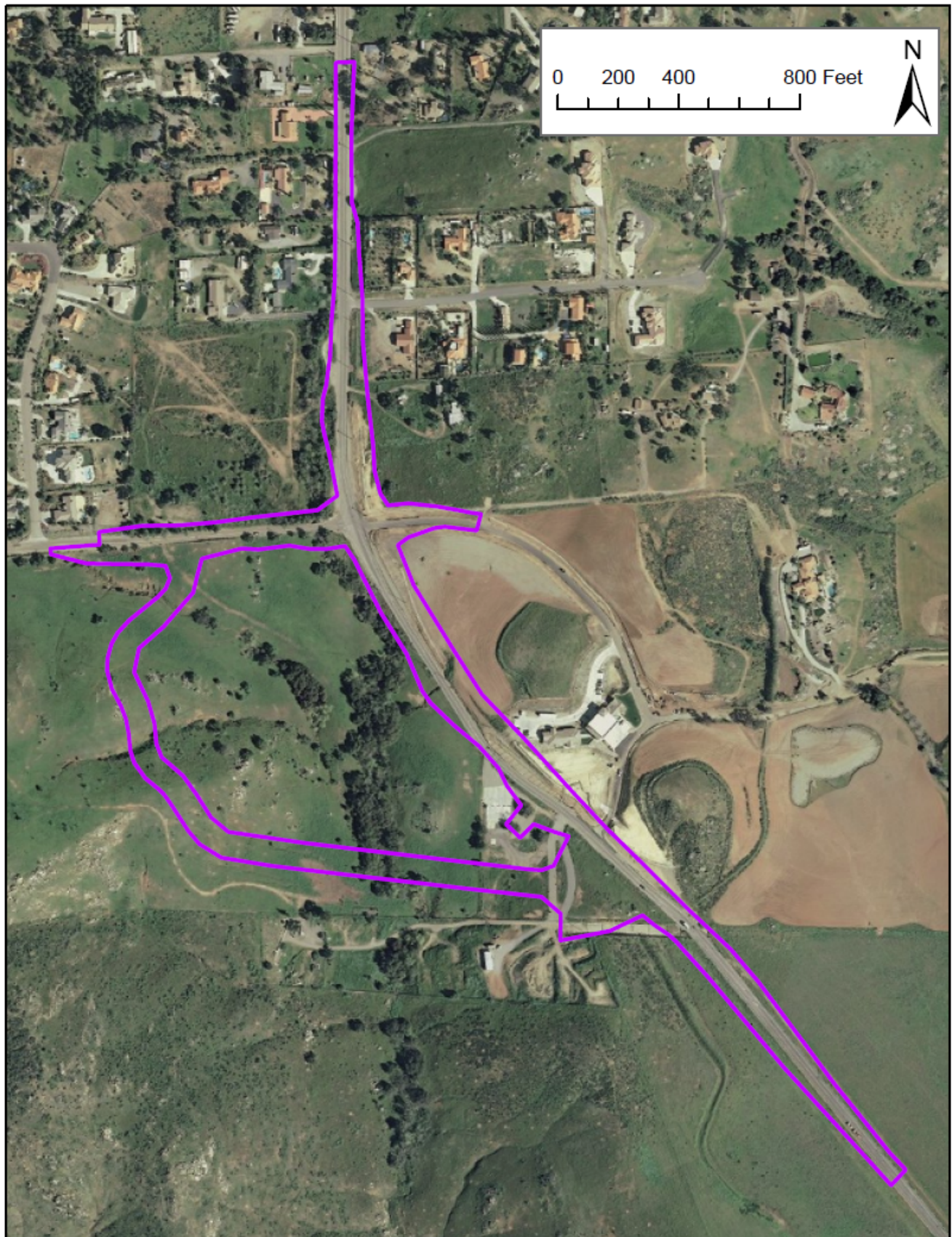


EXHIBIT 3: LIST OF FLORA OBSERVED WITHIN THE STUDY AREA DURING FIELD SURVEYS

Scientific Name	Common Name
<i>Amsinckia menziesii</i>	Menzies' fiddleneck
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Artemisia californica</i>	California sagebrush
<i>Avena barbata</i>	Slender wild oats
<i>Avena fatua</i>	Wild oat
<i>Bromus</i> spp.	Brome / chess grasses
<i>Carduus pycnocephalus</i>	Italian thistle (invasive)
<i>Centaurea</i> sp.	Thistle (invasive)
<i>Chamaesyce</i> sp.	Spurge
<i>Chenopodium</i> sp.	Goosefoot
<i>Citrus</i> sp.	Citrus orchard
<i>Claytonia parviflora</i>	Miner's lettuce
<i>Convolvulus arvensis</i>	Field bindweed
<i>Conyza</i> spp.	Horseweed
<i>Cynodon dactylon</i>	Bermuda grass
<i>Datura</i> sp.	Jimsonweed
<i>Eriogonum fasciculatum</i>	California buckwheat
<i>Erodium</i> spp.	Filarees
<i>Eremocarpus setigerus</i>	Turkey mullein
<i>Eschscholzia californica</i>	California poppy
<i>Eucalyptus</i>	Blue gum eucalyptus
<i>Galium angustifolium angustifolium</i>	narrow leaved bedstraw
<i>Gnaphalium</i> spp.	Cudweed & everlasting
<i>Hedynois cretica</i>	Cretanweed
<i>Heterotheca grandiflora</i>	Telegraphweed
<i>Hordeum murinum</i>	Barley
<i>Hypochaeris glabra</i>	Smooth catsear
<i>Iris</i> sp.	Iris (ornamental)
<i>Lemna minuscula</i>	Duckweed
<i>Lolium perenne</i>	Ryegrass
<i>Lotus purshianus</i>	Spanish clover
<i>Lupinus hirsutissimus</i>	stinging annual lupine
<i>Malosma laurina</i>	Laurel sumac
<i>Malva parviflora</i>	Cheeseweed
<i>Marrubium vulgare</i>	White horehound
<i>Medicago polymorpha</i>	California burclover
<i>Nicotiana</i> sp.	Tree tobacco (invasive)
<i>Olea europaea</i>	Olive, ornamental
<i>Opuntia</i> sp.	Cholla
<i>Pennisetum setaceum</i>	Crimson fountaingrass
<i>Plagiobothrys collinus</i>	Cooper's popcornflower
<i>Plantago erecta</i>	California plantain
<i>Plantago major</i>	Common plantain
<i>Plantago ovata</i>	Woolly Plantain
<i>Quercus agrifolia</i>	Coast live oak
<i>Raphanus sativus</i>	Wild Radish
<i>Rhamnus crocea</i>	redberry buckthorn
<i>Rorippa nasturtium-aquaticum</i>	watercress
<i>Rumex crispus</i>	Curly dock
<i>Salix lasiolepis</i>	Arroyo willow
<i>Salix gooddingii</i>	Goodding's black willow

Scientific Name	Common Name
<i>Salsola tragus</i>	Russian thistle
<i>Sambucus mexicanus</i>	Blue elderberry
<i>Schinus molle</i>	Peruvian peppertree (ornamental)
<i>Scrophularia californica</i>	California figwort
<i>Toxicodendron diversilobum</i>	Poison oak
<i>Triticum</i> sp.	Wheat (grain crop)
<i>Urtica urens</i>	Dwarf nettle
<i>Vulpia myuros</i>	Foxtail fescue
<i>Xanthium strumarium</i>	Cocklebur (invasive)

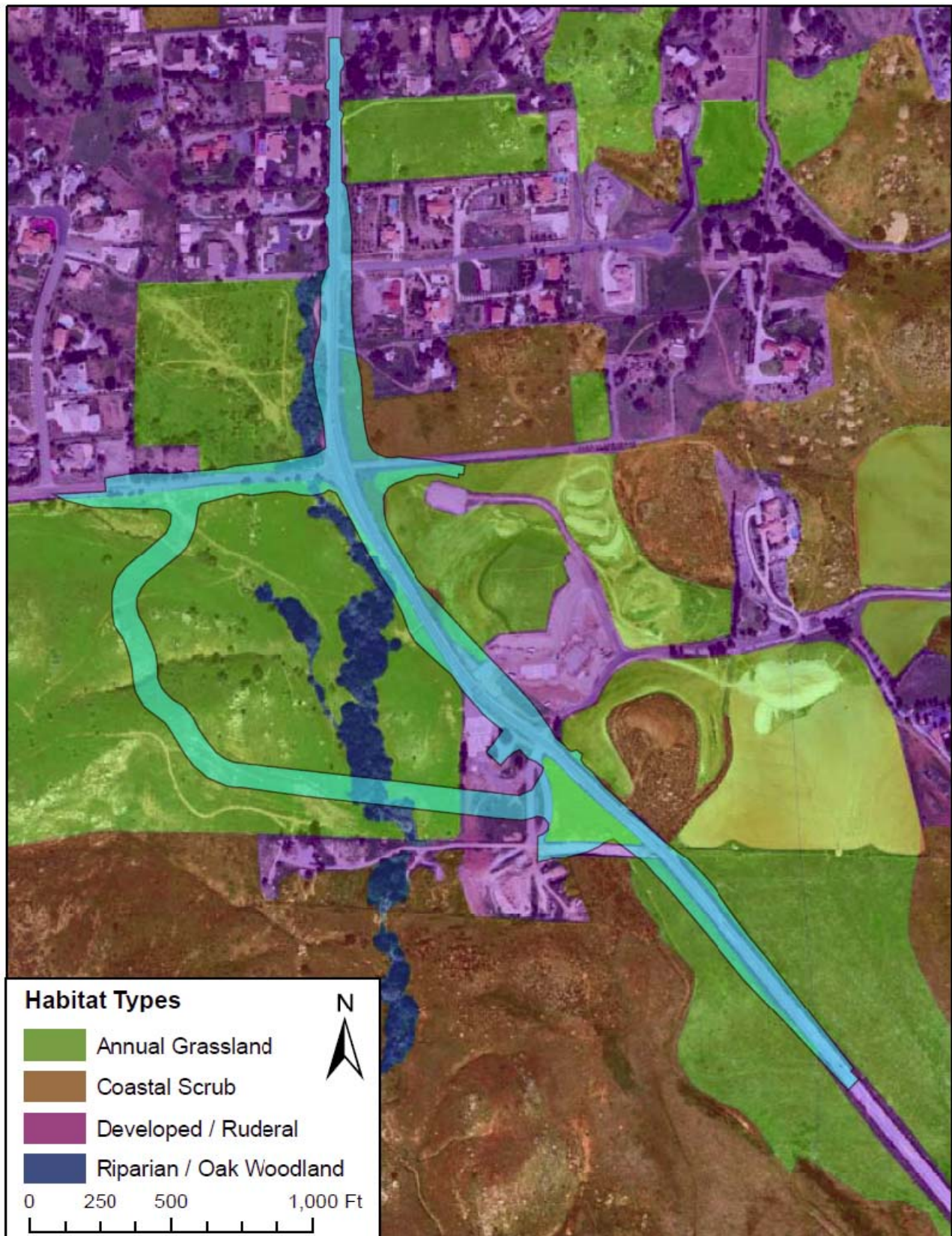
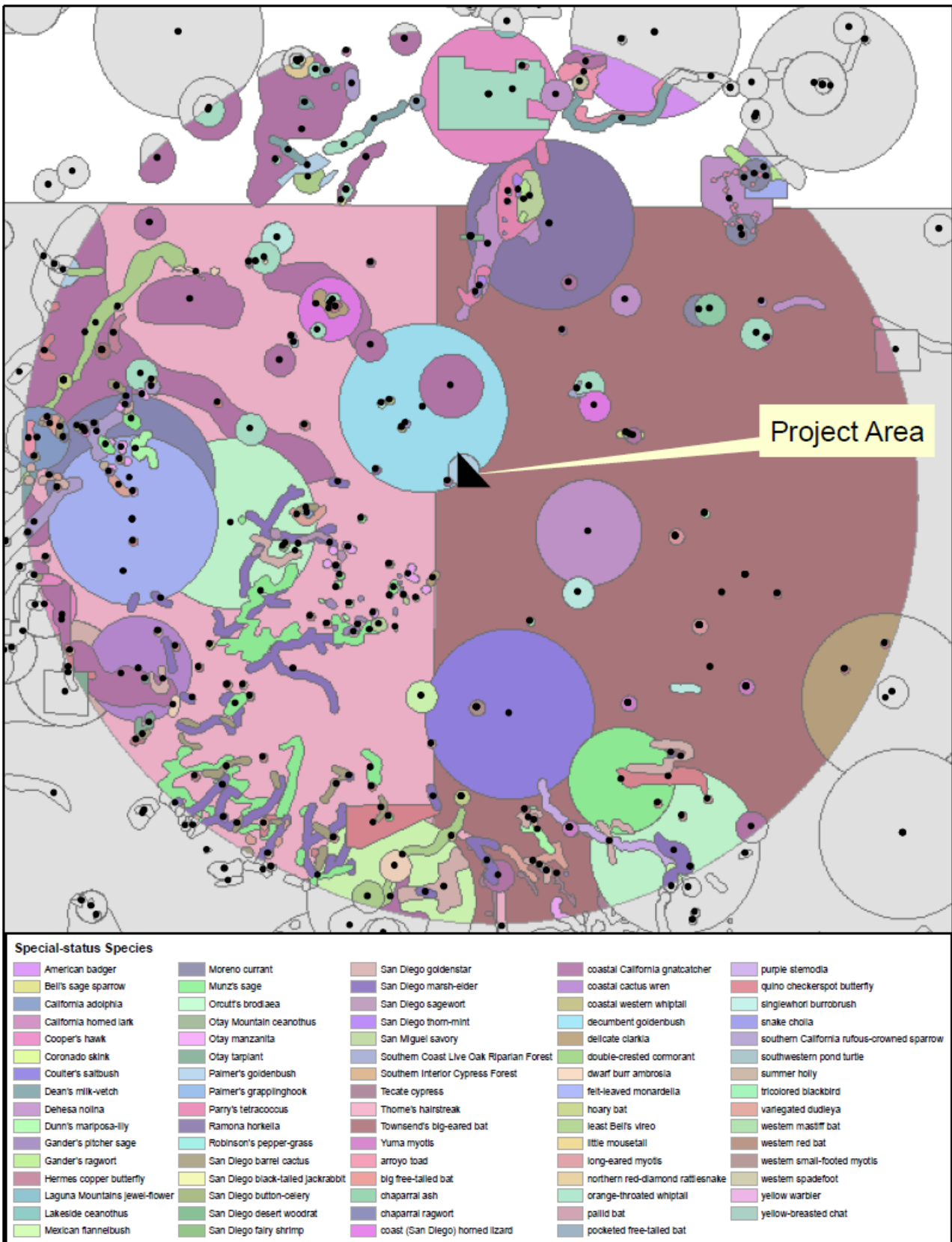
EXHIBIT 4: MAP OF VEGETATION COMMUNITIES / HABITAT TYPES WITHIN STUDY AREA

EXHIBIT 5: CNDDDB RECORDS OF SPECIAL-STATUS SPECIES WITHIN A 10-MILE RADIUS OF THE STUDY AREA



APPENDIX 3D

Access Roadways Mid-Late Spring 2011 Surveys

**A Botanical Inventory of
Roadways and Proposed Routes Associated
with the Jamul Rancheria, Jamul,
San Diego County, California**

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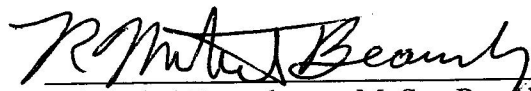
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PSBS # T7070
2 June 2011

A handwritten signature in black ink, reading "R. Mitchel Beauchamp". The signature is fluid and cursive, with the first name "R. Mitchel" and the last name "Beauchamp" clearly distinguishable.

R. Mitchel Beauchamp, M. Sc., President
County of San Diego Certified Biological Consultant

**A Botanical Inventory of Roadways and Proposed Routes
Associated with the Jamul Rancheria, Jamul,
San Diego County, California**

INTRODUCTION

A biological inventory of along existing and on proposed routes involved with proposed development activity at the Jamul Rancheria trust land was made by the biological consulting staff of Pacific Southwest Biological Services, Inc., (Pacific Southwest) at the request of EDS of Sacramento. The inventory involved identification of all vascular plants observed along the roads and routes.

SITE PHYSIOGRAPHY

The two roadways involved are State Route 94 and Melody Road, also referred to as Proctor Valley Road on some maps. A proposed access route through an open field south of Melody Lane was also examined. The aggregate area of the roads and routes totals about 20 acres (Figure 1).

Geology mapped for the area of the road and routes is Mesozoic granodioritic rocks in the northern portion of the study area and Jurassic-Triassic Metavolcanic rocks in the southern portion (Strand 1962).

The soils mapped for the area are: Las Posas fine sandy loam, 15 to 30 percent slopes (LpE2) in the village area, Las Posas fine sandy loam, 5 to 9 percent (LpC2) in the eastern annual grassland area, Cienega very rocky coarse sandy loam, 30 to 75 percent slopes (CmrG) in the western portion of the northwestern parcel, Exchequer rocky silt loam, 30 to 70 percent (ExG) at the southern end of the northwestern parcel, Fallbrook sandy loam, 15 to 30 percent slopes, eroded (FaE2) in the northwestern and northern parcels, Wyman loam, 5 to 9 percent slope (WmC) in the field north of Melody Road, and Ramona sandy loam, 5 to 9 percent slopes eroded (RaC2) in the north western parcel (Bowman 1973). The elevation range of the parcels is 1139 feet at the southwestern peak and 873 feet at the downstream end of the drainage through the village.

Rainfall prior to the survey was above normal rainfall averages for the 2010 – 2011 season

METHODS

A botanical inventory of the parcel was performed by R. Mitchel Beauchamp, senior biologist of Pacific Southwest in compliance with U.S. Fish and Wildlife Service botanical survey guidelines (Appendix 2). That assessment was performed on 13 April 2011 and 1 June 2011 and involved walking along the identified portions of the roadways and the proposed route in the open field...A distance of 10 feet from the edge of payment was used as the census area along the roadways. An accumulating listing was made of all plant taxa observed. A checklist of observed plants was compiled (Appendix 1).

VEGETATION

Coastal Sage Scrub

The open field area has a very disturbed remnant of Coastal Sage Scrub elements, ie. Flat-top Buckwheat / California Sagebrush and Laurel-leaf Sumac. Past and current cattle grazing has destroyed the structural nature of this vegetation, leaving a field of scattered,

isolated shrubs amidst open areas charged with manure and a thriving infestation of Filaree (*Erodium moschatum*).

Riparian Woodland

The principal drainage through the northern and northwestern parcel has a woodland of Arroyo and Black Willows (*Salix lasiolepis*, *S. gooddingii*), along with Coast Live and Engelmann Oaks (*Quercus agrifolia*, *Q. engelmannii*). The woodland varies in its width, from a narrow 5-foot wide channel to a luxuriant woodland 90-feet wide. The understory has been sterilized by the cattle grazing. The area of the crossing is limited to Coast Live Oaks and Black Willow.

Mule-fat Scrub

One of the reaches of the drainages on the open field in the area of the proposed route crossing has a depauperate cover of Mule-fat (*Baccharis salicifolia*) and lies upstream of the more diverse Willow Riparian Woodland.

Disturbed Areas

The majority of the habitat within the 10 foot wide zone observed along State Route 94 and Melody Lane is highly disturbed by road maintenance activities. Most of the plants are non-native annuals.

SENSITIVE SPECIES

Plants

Several endemic plant species occur on the parcels. One listed as Rare, Threatened or Endangered by state or federal agencies occurs. Appendix 3 indicates other taxa known within the vicinity of the subject parcel.

Palmer's Goldenbush (*Ericameria palmeri* ssp. *palmeri*) is a Narrow Endemic rated by California Plant Society as 1B (3-2-1) and occurs in the western San Diego and northwestern Baja California region. On the project site the taxon occurs as a single clone, about 2 meters in diameter, on the southern portion of the alignment on an southeast facing slope and that been heavily grazed.. Apparently the aromatic aspect of the plant has precluded its being grazed by cattle. Mitigation by the County of San Diego for impacts to this species has been one of revegetation using the plant in the area of the project, the nearest known being about at Jamacha Road and State Route 94.

FINDINGS

The mid-spring and late surveys revealed that no sensitive plants occur along the paved roadways. Within in the Open Field is a stand of *Ericameria palmeri* occurs, persisting from the past and present cattle grazing.

Literature Cited

U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed, and candidate plants. Sacramento, California.

2 pp

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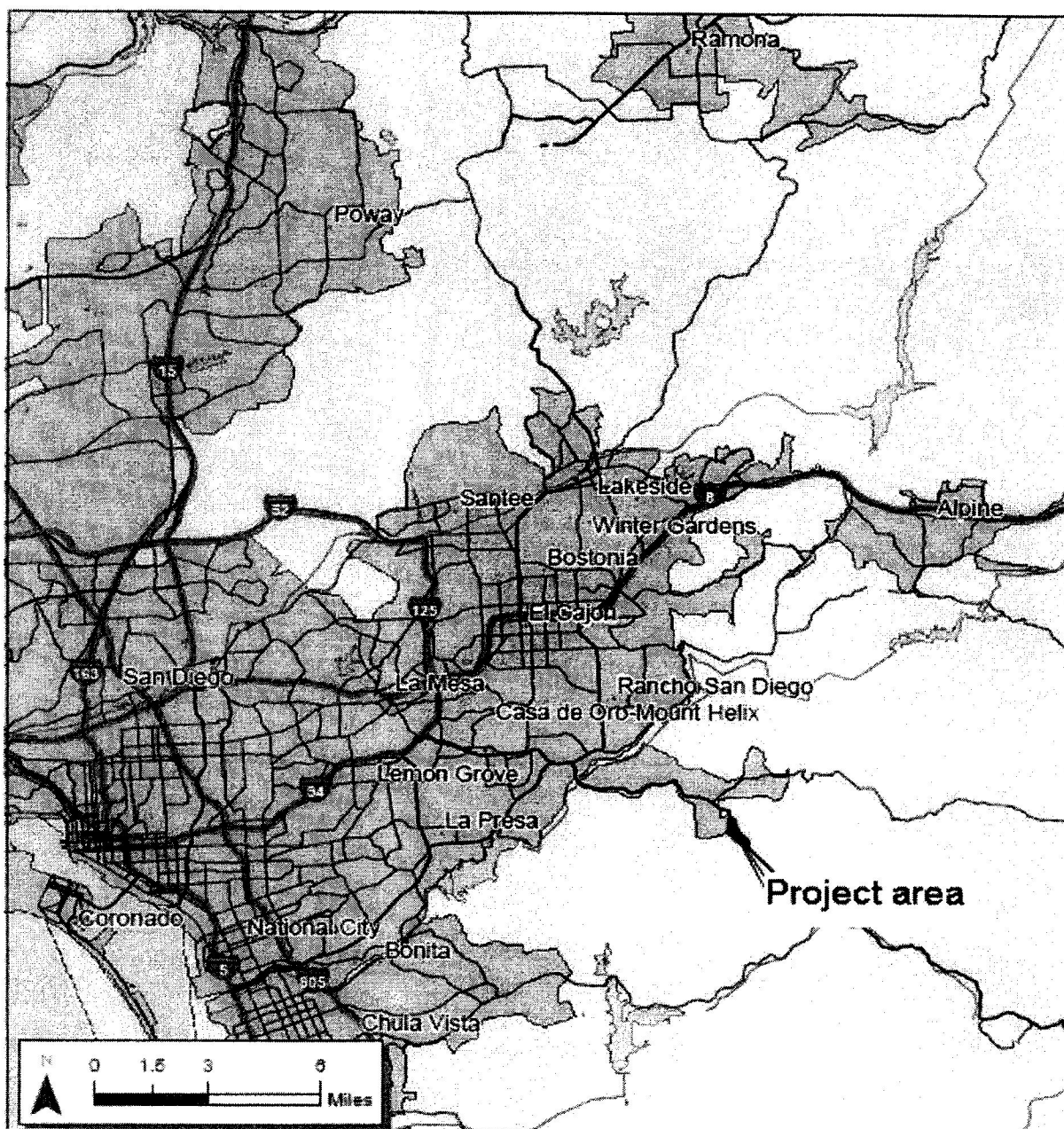


Figure 1.
Jamul Project Sites



4-23-11

MAP SOURCE: DELORME 3-D TOPO QUADS

PACIFIC SOUTHWEST BIOLOGICAL SERVICES, INC.

PSBS#T 707E

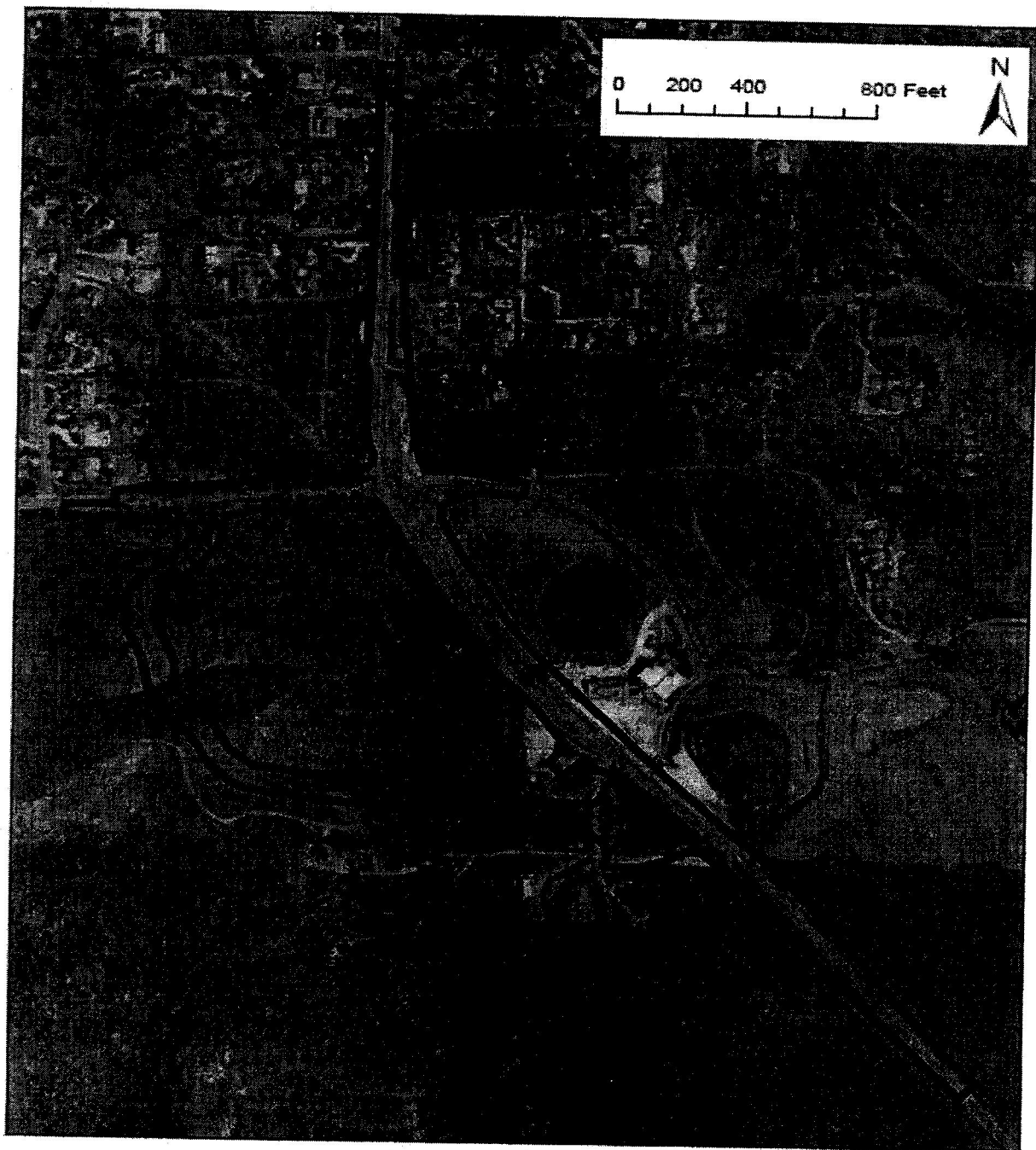


Figure 2.
Jamul Routes and Roads



4-23-11

MAP SOURCE: DELORME 3-D TOPO QUADS

PACIFIC SOUTHWEST BIOLOGICAL SERVICES, INC.

Appendix 1. Floral Checklist of Species Observed along the Assessed Roadways and Routes at the Jamul Rancheria**DICOTYLEDONS****Adosaceae**

Sambucus mexicana Presl Mexican Elderberry

Anacardiaceae - Sumac Family

Malosma laurina (Torr. & Gray) Abrams Laurel sumac

**Schinus molle* L. Peruvian pepper tree

Toxicodendron radicans (L.) Kuntze ssp. *diversilobum* (T. & G.) Thorne. Western poison-oak

Apiaceae - Carrot Family

Sanicula arguta (Torrey & Gray) Coult. & Rose sharp-tooth sanicle

Asteraceae - Sunflower Family

Artemisia californica Less. California sagebrush

**Centaurea melitensis* L. tocalote

**Cirsium vulgare* (Savi) Ten. bull thistle

**Conyza canadensis* (L.) Cronq. horseweed

Ercymeria palmeri (Gray) Hall ssp. *palmeri* Palmer's Goldenbush

**Filago gallica* L. Narrow-leaf filago

Gnaphalium bicolor Bioletti bicolor cudweed

Gnaphalium californicum DC. California everlasting

Gutierrezia sarothrae (Pursh) Britt. & Rusby matchweed

**Hedypnois cretica* (L.) Willd. Crete hedypnois

Heterotheca grandiflora Nutt. telegraph weed

**Hypochoeris glabra* L. smooth cat's-ear

Isocoma menziesii (Hook. & Arn.) Nesom var. *vernonioides* (Nutt.) Nesom coastal goldenbush

Lessingia filaginifolia (Hook. & Arn.) M.A. Lane var. *filaginifolia* cudweed aster

**Picris echioides* L. bristly ox-tongue

**Silybum marianum* (L.) Gaertn. Milk-Thistle

Stephanomeria virgata Nutt. Tall Wreath Plant

**Sonchus asper* (L.) Hill prickly sow thistle

Boraginaceae - Borage Family

Amsinckia menziesii (Lehm.) Nelson & J.F. Macbr. var. *intermedia* (F. & M.) Ganders rancher's fireweed

Plagiobothrys collinus (Philbr.) J.M. Johnston var. *californicus* (A. Gray) Higgings California popcornflower

Brassicaceae - Mustard Family

Guillenia lasiophylla (Hook. & Arn.) Greene California mustard

**Hirschfeldia incana* (L.) Lagr.-Fossat short-pod mustard

**Raphanus sativus* L. radish

**Sisymbrium irio* L. London rocket

Cactaceae - Cactus Family

Opuntia prolifera (Engelm.) Ckll. Coast Cholla

Caryophyllaceae - Pink Family

Spergularia marina (L.) Griesb. San Spurry

Chenopodiaceae - Goosefoot Family

Chenopodium album L. White Goosefoot

**Salsola tragus* L. Russian thistle

Appendix 1. Floral Checklist of Species Observed along the Assessed Roadways and Routes at the Jamul Rancheria (continued)**Euphorbiaceae - Spurge Family**

Chamaesyce melanadenia (Torr.) Millsp. Sandmat
Eremocarpus setigerus (Hook.) Benth. Doveweed

Fabaceae - Legume Family

Lotus purshianus (Benth.) Clem & Clem. Spanish-Clover
Lotus salsuginosus Greene ssp. *salsuginosus* alkali lotus
Lotus scoparius ssp. *brevialatus* (Ottley) Munz deerweed
Lupinus bicolor Lindl. miniature lupine
**Medicago polymorpha* L. California burclover
**Melilotus indica*

Fagaceae - Oak Family

Quercus agrifolia Neé coast live oak

Gentianaceae – Gentian Family

Centaurium venustum (Gray) Rob. Canchalagua

Geraniaceae - Geranium Family

**Erodium botrys* (Cav.) Bertol. long-beak filaree
**Erodium cicutarium* (L.) L'Hér. red-stem filaree
**Erodium moschatum* (L.) L'Hér. white-stem filaree

Lamiaceae - Mint Family

**Marrubium vulgare* L. horehound
Salvia apiana Jeps. White Sage

Malvaceae - Mallow Family

**Malva parviflora* L. Cheeseweed, little mallow
Sidalcea malvaeflora (DC.) Gray ex Benth. ssp. *sparsifolia* C.L. Hitchc. Checkers

Myrsinaceae

**Anagallis arvensis* L. Scarlet Pimpernel

Onagraceae - Evening-Primrose Family

Camissonia bistorta (Torrey & Gray) Raven California sun cup

Plantaginaceae - Plantain Family

Plantago erecta Morris dot-seed plantain

Prymaceae – Monkeyflower Family

Diplacus aurantiacus (Curt.) Jeps. ssp. *australis* (McMinn) Beeks. ex Throne Bush Monkeyflower

Polygonaceae - Buckwheat Family

Eriogonum fasciculatum Benth. var. *fasciculatum* flat-top buckwheat

Rhamnaceae - Buckthorn Family

Rhamnus crocea Torrey & Gray spiny redberry

Salicaceae - Willow Family

Salix gooddingii Ball Goodding's black willow

Appendix 1. Floral Checklist of Species Observed along the Assessed Roadways and Routes at the Jamul Rancheria (continued)**Scrophulariaceae - Figwort Family**

Scrophularia californica Cham. & Schldl. ssp. *floribunda* (Greene) Shaw California figwort

Solanaceae - Nightshade Family

Datura wrightii Regel Western jimsonweed

**Nicotiana glauca* Grah. tree tobacco

Urticaceae - Nettle Family

**Urtica urens* L. dwarf nettle

MONOCOTYLEDONS**Cyperaceae – Cyperus Family**

**Cyperus alternifolius* L. African Umbrella Sedge

Poaceae - Grass Family

**Avena barbata* Link slender wild oat

Bothriochloa barbinodis (Lag.)Herter Plumed Beardgrass

**Bromus diandrus* Roth ripgut grass

**Bromus hordeaceus* L. soft chess

**Bromus madritensis* L. ssp. *rubens* (L.) Husnot red brome

**Hordeum murinum* ssp. *leporinum* (Link) Arcang. hare barley

**Lamarckia aurea* (L.) Moench golden-top

**Lolium perenne* L. perennial ryegrass

**Pennisetum setaceum* Forsk. fountain grass

**Polypogon monspiliensis* (L.)Desf. Rabbits-foot Grass

**Schismus barbatus* (L.) Thell. Mediterranean schismus

**Vulpia myuros* (L.) Gmelin var. *hirsuta* (Hackett) Asch & Graetoner foxtail fescue

* - Denotes non-native plant taxa

Appendix II. Federal Botanical survey Guidelines

Federal protocol for botanical surveys has been promulgated (September 23, 1996). These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed, or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.
2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.
3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.
4. Report results of botanical field inventories that include:
 - a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species
 - b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name
 - c. survey dates and survey methodology(ies)
 - d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made
 - e. a comprehensive list of all vascular plants occurring on the project site for each habitat type
 - f. current and historic land uses of the habitat(s) and degree of site alteration
 - g. presence of target species off-site on adjacent parcels, if known
 - h. an assessment of the biological significance or ecological quality of the project site in a local and regional context
5. If target species is(are) found, report results that additionally include:
 - a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project
 - b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors.

c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports.

d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

9. Guidance from California Department of Fish and Game (CDFG) regarding plant and plant community surveys can be found in Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, 1984.

Appendix 3. Sensitive Plant Taxa know from the Vicinity of the Subject Parcel

Scientific and Common Name	Sensitivity Code & Status (Federal, State, Local, other)	San Diego County List/ Group	Habitat Preferences/ Requirements	Verified On Site Yes/No (Direct/ Indirect Evidence)	Potential to Occur On Site (Obs-LMH)	Factual Basis for Determination of Occurrence Potentia
<i>Acanthomintha ilicifolia</i> San Diego Thorn-mint	FT/SE/1B (2-3-2)	List A	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, endemic to active vertisol clay soils of mesas & valleys, usu on clay lenses within grassland or chaparral communities, 10-935 m.	NO	Low	Site lacks clay soils
<i>Adophia californica</i> California Adolphia	None/None/2 (1-3-1)	List B	Chaparral, coastal sage scrub, valley & foothill grassland, from sandy/gravelly to clay soils within grassland, coastal sage scrub, or chaparral; various exposures, 15-300 m.	NO	Low	Site lacks clay soils
<i>Ambrosia monogyra</i> Singlewhorl Burrobush	None/None/2.2			NO	Moderate	Not observed In drainages
<i>Ambrosia pumila</i> San Diego Ambrosia	FE/None/1B (3-3-2)	List A	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, esp in sandy loam or clay soil, in valleys; persists where disturbance has been superficial, 20-415 m.	NO	Low	Site lacks alluvial bench formations
<i>Arctostaphylos otayensis</i> Otay Manzanita	None/None/1B (3-2-3)	List A	Chaparral, cismontane woodland/metavolcanic; 275-1700 m.	NO	Low	Site lacks Chaparral Vegetation and rocky substrate
<i>Artemisia palmeri</i> San Diego Sagewort	None/None/2 (2-2-1)	List B	Chaparral, coastal sage scrub, riparian scrub & woodland/sandy, mesic, 15-915 m.	NO	High	Not observed in riparian systems in the area
<i>Astragalus deanei</i> Dean's Milk-vetch	FSC/None/1B (3-3-3)	List A	Chaparral, coastal scrub, riparian forest, endemic to SD Co., esp open brushy s-facing slopes in Diegan coastal sage, occ on recently burned hillsides, 75-670 m.	NO	Low	Site is outside plant's range in middle Sweetwater River drainage
<i>Atriplex coulteri</i> Coulter's Saltbush	None/None/1B(2-2-2)	List A	Coastal bluff scrub, coastal dunes, coastal scrub, valley & foothill grassland, esp. on ocean bluffs, ridge tops, alkaline low places, 10-440 m.	NO	Low	Site lacks coastal alkaline conditions

<i>Brodiaea orcuttii</i> Orcutt's Brodiaea	FSC/None/1B (1-3-2)	List A	Vernal pools, valley & foothill grassland, closed-cone conif forest, cismontane woodland, chaparral, meadows, esp mesic, clay habitats, occ serpentine, in vernal pools & small drainages, 30-1615 m.	NO	Moderate	Site lacks undisturbed clay soils
<i>Calochortus dunnii</i> Dunn's Mariposa Lily	None/Rare/1B (2-2-2)	Narrow Endemic, List A	Closed-cone conif forest, chaparral, esp. on gabbro or metavolcanic soils; also known from sandstone, oft assoc w/chaparral, 375-1830 m.	NO	Low	Site lacks metavolcanic or significant areas of gabbroic-derived soils
<i>Ceanothus otayensis</i> Otay Mountain Ceanothus	None/None/1B (3-2-2)		Chaparral (metavolcanic or gabbroic), known in CA only fr San Miguel & Otay Mtns., 600-1100 m.	NO	Low	Site lacks Chaparral Vegetation and rocky substrate
<i>Clarkia delicata</i> Delicate Clarkia	None/None/2 (1-2-1)	List B	Cismontane woodland, chaparral, only in SD Co., 235-1,000 m.	NO	Low	Site lacks intact woodland understory habitat
<i>Comarostaphylos diversifolia</i> ssp. <i>diversifolia</i> Summer-Holly	FSC/None/1B (2-2-2)	List A	Chaparral, oft in mixed chaparral in CA, sometimes post-burn, 30-550 m.	NO	Low	Site lacks Chaparral vegetation and rocky substrate
<i>Cordylanthus orcuttianus</i> Orcutt's Bird's-beak	None/None/2 (3-3-1)	List B	Coastal scrub. In CA, known only fr SD Co.; also in Baja. Found in coastal scrub assoc on slopes, also reported fr intermittent moist swales, & in washes, 100-200 m.	NO	Low	Site lacks alkaline and bentonitic soils
<i>Cupressus forbesii</i> Tecate Cypress	FSC/None/1B (3-3-2)	List A	Closed-cone conif forest, chaparral, esp. on north-facing slopes, groves oft assoc w/chaparral, 250-1500 m.	NO	Low	Site lacks Chaparral vegetation and rocky substrate
<i>Deinandra [Hemizonia] conjugens</i> Otay Tarplant	FT/SE/1B (3-3-2)	Narrow Endemic, List A	Coastal scrub, valley & foothill grassland. In CA, known only fr SD Co. Coastal plains, mesas, river bottoms, oft in open dist areas, clay soils, 25-300 m.	NO	Low	Site lacks undisturbed clay soils
<i>Dudleya variegata</i> Variegated Dudleya	FT/SE/1B(3-3-2)	Narrow Endemic, List A	Chaparral, coastal scrub, cismontane woodland, valley & foothill grassland, vernal pools. In CA, known only fr SD Co. Rocky or clay soils, vernal pool margins, 3-550 m.	NO	Low	Site lacks undisturbed clay soils

<i>Ericameria palmeri</i> ssp. <i>palmeri</i> Palmer's Goldenbush	None/None/1B (3-2-1)	Narrow Endemi c, List B	Coastal scrub, chaparral, granitic soils, steep hillsides, mesic areas; 100-600 m.	YES	OBSERVED	Occurs as a single stand in alignment of open field route
<i>Eryngium</i> <i>aristulatum</i> var. <i>parishii</i> San Diego Button- celery	FE/SE/1B (2-3- 2)	List A	Vernal pools, coastal scrub, valley & foothill grassland, esp in SD mesa hardpan & claypan vernal pools & southern interior basalt flow vernal pools; usu surr by scrub, 15-620 m	NO	Low	Site lacks level areas and vernal pool formations
<i>Ferocactus</i> <i>viridescens</i> San Diego Barrel Cactus	FSC/None/2 (1- 3-1)	List B	Chaparral, Diegan coastal scrub, valley & foothill grassland, oft on exposed, level or s- facing sloping areas; oft in coastal scrub near crest of slopes, 3-485 m.	NO	Low	Site lacks intact Coastal Sage Scrub vegetation and lies too far east of know range
<i>Fremontodendron</i> <i>mexicanum</i> Mexican Flannelbush	FE/Rare/1B (3- 3-2)		Closed-cone conif forest, chaparral, cismontane woodland. Usu scattered along borders of creeks or in dry cyns; sometimes on gabbro soils, 10-490 m.	NO	Low	Site lacks Chaparral habitat and rocky substrate
<i>Harpagonella</i> <i>palmeri</i> Palmer's Grapplinghook	None/None/4 (1-2-1)	List B	Chaparral, coastal scrub, valley & foothill grassland, esp clay soils, open grassy areas, 15-830 m.	NO	Low	Site lacks clay Soils
<i>Isocoma menziesii</i> var. <i>decumbens</i> Decumbent Goldenbush	None/None/1B (2-2-2)	List A	Coastal sage, sandy soil, often in disturbed sites, 10-910 m.	NO	Low	Site lacks intact Coastal Sage Scrub vegetation
<i>Iva hayesiana</i> San Diego Marsh- elder	FSC/None/2 (2- 2-1)	List B	Marshes & swamps, playas, esp in river washes, 10-500 m.	NO	Moderate	Not observed in channels on site or in the vicinity
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's Goldfields	FSC/None/1B (2-3-2)	List A	Coastal salt marshes, playas, valley & foothill grassland, vernal pools, usu in alkaline soils in playas, sinks, grassland, 1-1400 m.	NO	Low	Site lacks mesic alkaline habitats
<i>Lepechinia</i> <i>ganderi</i> Gander's Pitcher Sage	None/None/1B (3-1-2)	Narrow Endemi c, List A	Closed-cone conif forest, chaparral, coastal scrub, valley & foothill grassland/gabbroic or metavolcanic. SD Co., Baja. Known in CA fr fewer than 10 occurs, 305-1005 m.	NO	Low	Site lacks Chaparral Vegetation and rocky substrate
<i>Lepidium</i> <i>virginicum</i> var. <i>robinsonii</i> Robinson's Pepper-grass	None/None/1B (3-2-2)	List A	Alkaline sites on the coastal sides of the main mountain ranges, below 800 m..	NO	Low	Site lacks undisturbed Coastal Sage Scrub

<i>Muilla clevelandii</i> San Diego Goldenstar	FSC/None/1B (2-2-2)	List A	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, esp. mesa grasslands, scrub edges; under 50 m.	NO	Low	Site lacks intact clay soils
<i>Myosurus minimus</i> ssp. <i>apus</i> Little Mousetail	FSC/None/3 (2-3-2)	List A	Vernal pools. This ssp. has taxonomic probs. Distinguishing betw this and <i>M. sessilis</i> is difficult. Hybrid? Alkaline soils, 20-640 m.	NO	Low	Site lacks level land and vernal pool formations
<i>Nama stenocarpum</i> Mud Nama	None/None/2 (3-2-1)	List B	Marshes & swamps. Lake shores, river banks, intermitt. wet areas, 5-500 m.	NO	Low	Site lacks ponding features
<i>Navarretia fossalis</i> Spreading Navarretia	FT/None/1B (2-3-2)	List A	Vernal pools, chenopod scrub, marshes & swamps, playas, esp in SD hardpan & SD claypan vernal pools, in swales & vernal pools, often surr. by other habitat types, 30-1300 m.	NO	Low	Site lacks level land and vernal pool formations
<i>Opuntia californica</i> var <i>californica</i> Snake Cholla	None/None/1B (3-3-2)	Narrow Endemic, List A	Chaparral, coastal scrub, 30-150 m.	NO	Low	Site lacks intact shrubland vegetation
<i>Salvia munzii</i> Munz' Sage	None/None/2 (2-2-1)	List B	Chaparral, coastal sage scrub. Known only fr SD Co. & Baja. Rolling hills & slopes, 120-1065 m.	NO	Low	Site lacks Metavolcanic-derived soils
<i>Satureja chandleri</i> San Miguel Savory	None/None/4 (1-2-2)	List D	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley & foothill grassland, esp gabbroic or metavolcanic substrate, 120-1005 m.	NO	Low	Site lacks Chaparral and rocky substrate
<i>Senecio aphanactis</i> Rayless Ragwort	None/None/2 (3-2-1)	List B	Chaparral, cismontane woodland, coastal scrub/alkaline, 15-800 m. Rare in LA, OR, & RIV Cos.	NO	Low	Site lacks undisturbed habitats
<i>Senecio ganderi</i> Gander's Ragwort	FSC/SR/1B (3-2-3)	List A	Chaparral, esp. recently burned sites, gabbroic outcrops, 400-1200 m.	NO	Low	Site lacks significant areas of gabbroic-derived soils
<i>Stemodia durantifolia</i> Purple Stemodia	None/None/2 (3-3-1)		Sonoran desert scrub (often mesic, sandy), 180-300 m.	NO	Low	Site lacks ponding sites
<i>Streptanthus bernardinus</i> Laguna Mountains Jewelflower	None/None/None	List A	Chaparral, lower montane conif forest, 670-2500 m.	NO	Low	Site lacks Chaparral vegetation

<i>Tetracoccus dioicus</i> Parry's <i>Tetracoccus</i>	FSC/None/1B (3-2-2)	List A	Chaparral, coastal scrub, esp stony fine sandy decomposed gabbro soil, 165-1000 m.	NO	Low	Site lacks significant areas of gabbroic-derived soils
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